

NOVEMBER 21, 1955

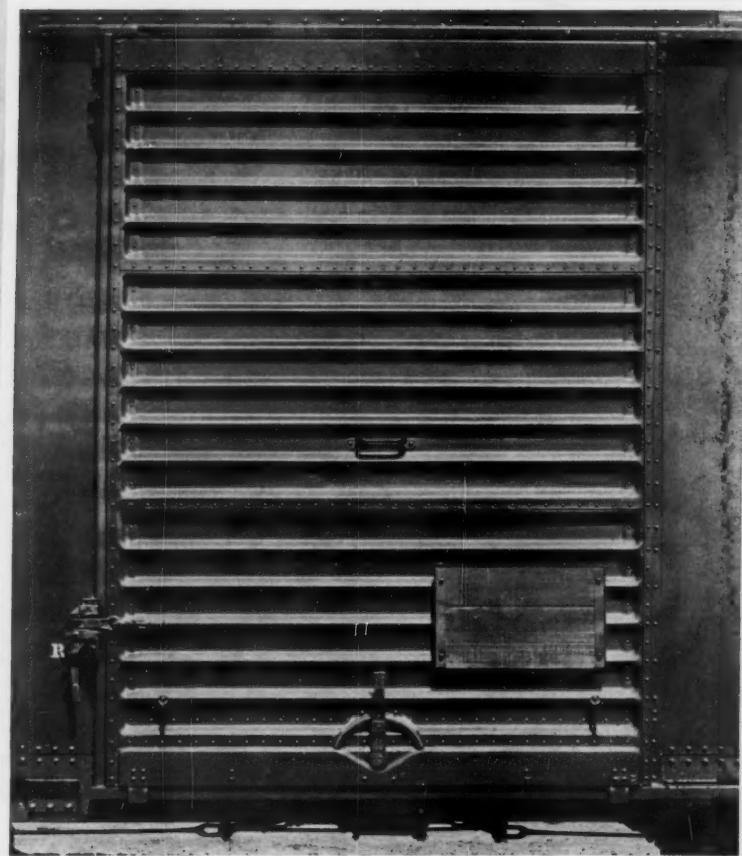
Car Service "Quiz" Answers . . . p. 16

RAILWAY AGE

One of Five Simmons-Boardman Railway Publications

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THIS freight car roller bearing, in service on a Class I road, was packed with approximately two and a half pounds of *Texaco 979 Roller Bearing Grease* on August 8, 1953.

On June 30, 1955, when the unretouched photo above was taken, the bearing had been in continuous service for 85,149 miles.

Note that there is no indication of "souping" and that the bearing is still fully packed. The *Texaco 979 Roller Bearing Grease* has stayed in the bearing, retained its original consistency, and no additional lubricant will have to be added for

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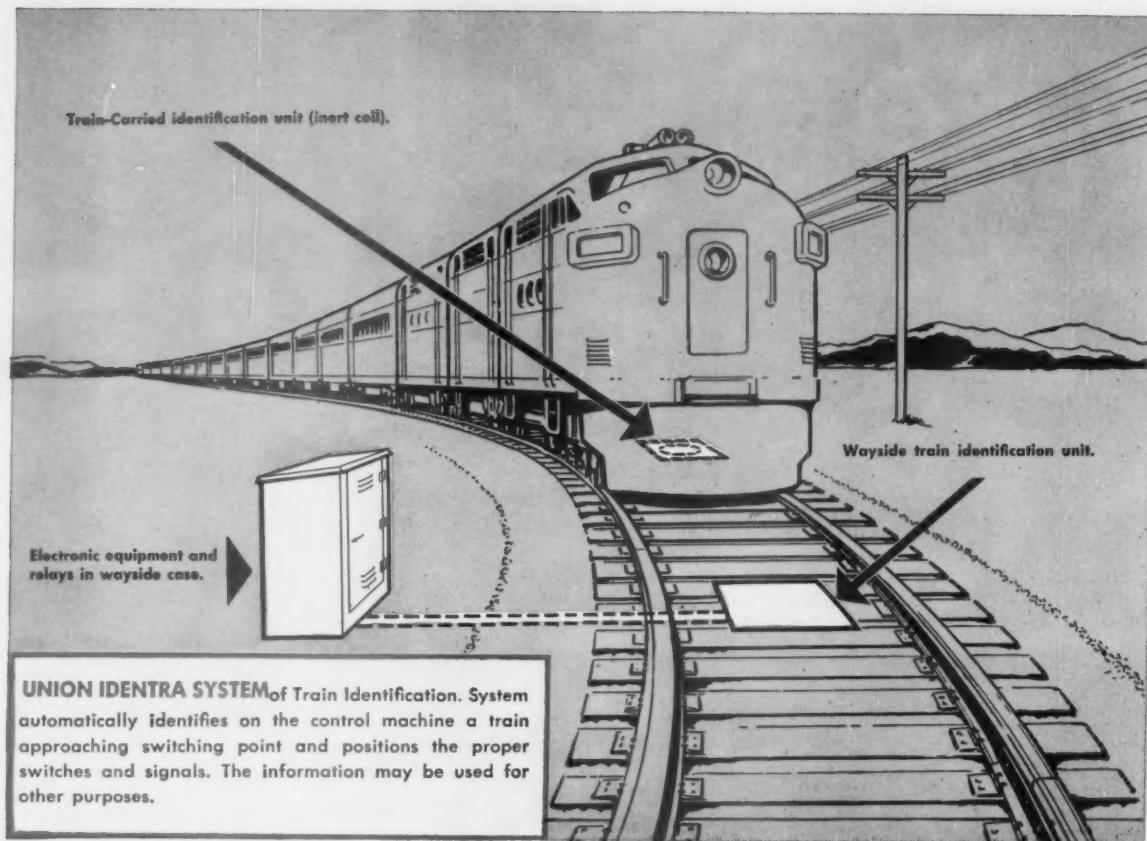
The screw-eye crank is a heat-treated alloy steel forging, with rounded thread roots to give maximum protection against progressive cracks in the shank. The switch stand base is cast of malleable iron for a smooth, firm bearing on the ties.

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November 21, 1955

Vol. 139, No. 21

Week at a Glance

The "well-rounded" college man is being sought more and more by industry, even by those that have insisted in the past on technological training. That is the encouraging belief expressed in a recent address by President Symes of the Pennsylvania Industry, he says, is looking to the campus more and more for men who are "both trained and educated." . . . 7

NEW WEEKLY FEATURE: Every week the news of what the railroads are doing in the market place—new equipment orders or inquiries; commitments for new yards and fixed property improvements; budget plans and long-range A&B programs; purchases and inventory position—will be assembled in a handy, fast-reading package on page 9. . . . 9

FORUM: Automation is a danger that union members are wise to worry about—if automation is to be extended without accompanying managerial opportunity to take advantage of its economies in lowering costs and raising output. History is full of instances where labor, and consumers, and owners of capital, all have benefited through automation (it used to be called mechanization). But in these instances management was operating in a free market. Under over-regulation, nobody reaps the full benefits of automation. . . . 27

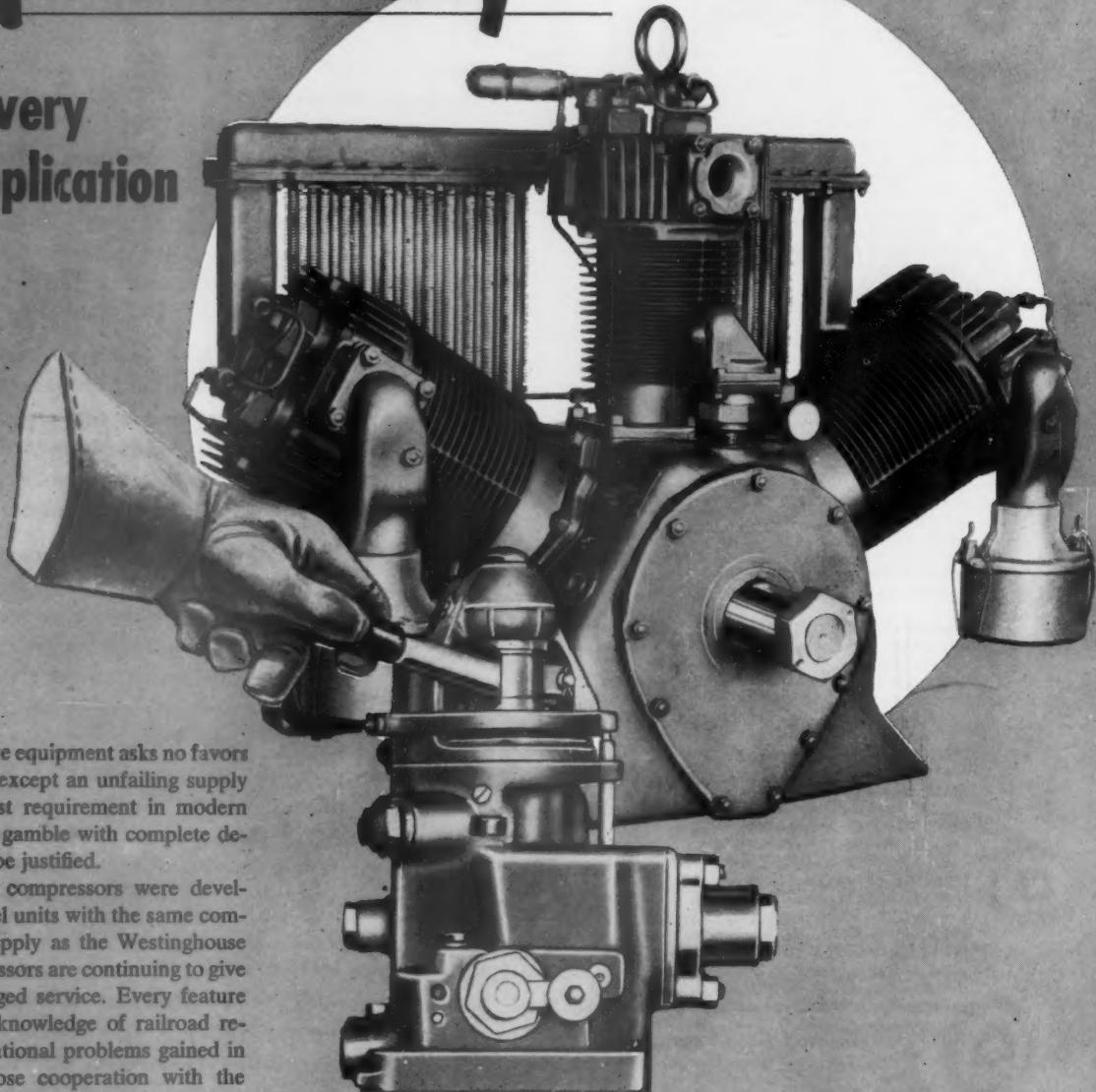
Four tracks to two, with CTC, sounds good enough to the New York Central's management to get a \$6-million appropriation for the job, now under way between Cleveland and Buffalo. This week we explain how this new traffic control installation will keep trains moving. . . . 28

Why be a foreman? That's a question many an ambitious railroad man has asked himself. And it's a question top management has to have the right answer to, if the railroads are going to keep on running efficiently. Some railroad personnel men have drawn up their analysis of the problems presented by this question, and because

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1. Radiator-type intercooler between high pressure and low pressure cylinders reduces temperature of discharge air and increases efficiency.
2. Full-pressure type lubrication system maintains even, constant flow of filtered oil to connecting rod crankshaft bearings and wrist-pin bearings.
3. Throw-off of oil from connecting rod bearings lubricates cylinder wall and also main crankshaft ball bearings.

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Current Statistics

Operating revenues, nine months	
1955	\$7,466,585,309
1954	6,975,961,026
Operating expenses, nine months	
1955	\$5,623,065,835
1954	5,546,999,420
Taxes nine months	
1955	\$ 820,244,988
1954	658,306,529
Net railway operating income, nine months	
1955	\$ 836,311,641
1954	580,921,059
Net income, estimated, nine months	
1955	\$ 661,000,000
1954	408,000,000
Average price railroad stocks	
November 15, 1955	97.03
November 16, 1954	75.75
Carloadings revenue freight	
Forty-four weeks, 1955	32,221,528
Forty-four weeks, 1954	28,877,570
Average daily freight car surplus	
Wk. ended Nov. 12, 1955	2,755
Wk. ended Nov. 13, 1954	28,785
Average daily freight car shortage	
Wk. ended Nov. 12, 1955	17,862
Wk. ended Nov. 13, 1954	2,716
Freight cars on order	
November 1, 1955	61,954
November 1, 1954	12,853
Freight cars delivered	
Ten months, 1955	29,710
Ten months, 1954	32,083
Average number of railroad employees	
Mid-October 1955	1,087,247
Mid-October 1954	1,055,145

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Departments

Current Publications	58
Figures of the Week	10
Financial	13
Forum	27
Law & Regulation	13
Management Speaks	12
Market Outlook	9
Operations	9
Organizations	13
Questions and Answers	16
Railway Officers	54
Rates & Fares	10

Week at a Glance CONTINUED

they have framed their thinking in terms of the individual they have written a prescription that can be applied straight across the board. . . . 31

Without sand, adhesion up to 26% is being obtained on one Eastern railroad by washing grease and moisture off the rail with suitable chemicals. The potential savings from elimination of helpers or extra trains on vexing grades can add up to spectacular figures. . . . 34

New aids for diesel repairs have been incorporated in the converted facilities of the Missouri Pacific at North Little Rock, where steam locomotives formerly were shopped. . . . 38

Why merge passenger and public relations work? SP Vice-President Peterson gives his answer in terms of close contacts realized in every community on the railroad as well as in principal off-line cities. . . . 44

COMING: How company forces can replace private contractors on big railroad jobs, either in maintenance, new construction, or remodeling. In next week's issue.

B R I E F S

Dumaine is getting out of New Haven entirely, Wall Street figures, from the recent sale to Union Securities Corporation of 131-thousand-odd shares of the road's preferred stock, held by the Amoskeag Company and other interests affiliated with the former New Haven president. The transaction involved about \$7,883,000.

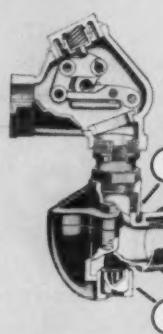
An extraordinary concentration of horsepower is obtained in a British-built diesel engine now installed on a locomotive. Known as the Deltic, it is an opposed-piston, two-stroke cycle design, with three cylinders arranged in a triangle. Each cylinder contains two pistons, which work in pairs, on three separate crank shafts geared to a single driving shaft. A single-unit locomotive, employing two of these engines, develops 3,300 hp, and weighs 117 tons, a ratio of 71 lb per hp. It was built by Napier & Sons.

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①



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②



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③



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"Industry Looks to the Campus"

PRR's Symes says industry more and more seeks "well-rounded" college men who are both "trained and educated"

"Industry is looking more and more to the campus for men who are both trained and educated," James M. Symes, president of the Pennsylvania, said in Hartford, Conn., November 10.

Speaking at the convocation of Trinity College, the PRR chief executive emphasized that with the expansion of industry, and the resultant need for leaders at all levels, "it has become increasingly clear that an engineer who knows only engineering, a chemist who knows only chemistry, a lawyer who knows only law, is not likely to be much of a leader.

"He must, in the old phrase, be 'well-rounded'—or, as we would say nowadays—both trained and educated. Otherwise he is likely to be one more example of the personal tragedy we see happen so often in an advancing company—his technical skill takes him up to a certain level, but his lack of general education, sound judgment and ability as a leader—his failure to see the company's business except in terms of his particular skill—halts

him there. Nor is the tragedy confined to him—the company loses full benefit of a brilliant mind."

Demagogues—Much of the older hostility between campus and industry, Mr. Symes said, has not been supplied by each other, but by demagogues operating outside both camps. Now, he continued, "industry and the campus see themselves as more and more joined in the common job of keeping America both strong and free."

Mr. Symes pointed out that 87% of the PRR's top officers are products of the campus, as is 80% of the road's next rank of executives. The average age of these men, he said, is 53 years, "which mean they began work about 30 years ago, when college attendance was far less general than now."

"My guess," he said, "is that as time goes on the proportion of college men in executive positions on our railroad will approach 100% (they can't reach 100% until I get out). Like so much of the rest of industry, we also are sending some of our

younger officers back to school. We turn again to professors to give these selected employees and junior officers further insight into their jobs and into how to do bigger jobs."

Specific Case—Describing the re-

SENATE GROUP PROBING ACTS OF ICC'S CROSS

The Senate Permanent Subcommittee on Investigations will hold public hearings in connection with an investigation it has made into activities of Chairman Hugh W. Cross of the Interstate Commerce Commission. While there was no official announcement naming Mr. Cross or the activities involved, it became an "open secret" last week that the subcommittee had been looking into the ICC chairman's intervention, if any, in negotiations which gave Railroad Transfer Service, Inc., the contract covering transfer of passengers and baggage between railroad stations in Chicago.

Transfer supplanted Parmelee Transportation Company, which had held a like contract for 102 years (*Railway Age*, July 18, page 9). John L. Keeshin, former truck operator, organized Transfer and is its president.

The Senate group's decision to hold public hearings was announced by its chairman, Senator McClellan, Democrat of Arkansas, who said the subject matter of the inquiry was "the conduct of a federal official as related to his official duty." The announcement came after lengthy executive sessions held by the committee November 15.

Commissioner Cross and Mr. Keeshin were among those questioned in the executive session. Others questioned included presidents of two railroads serving Chicago—P. E. Feucht of the North Western, and W. A. Johnston of the Illinois Central. When he emerged from the committee room, Mr. Cross was questioned by reporters as to whether he had ever received an offer of a position with Transfer. He replied that he had not.

No date has been set for the public hearing, but Senator McClellan said he hoped to hold them before the end of the year. On the other hand, some Republican members of the subcommittee want them put off until after Congress reconvenes in January. Commissioner Cross, a Republican, was formerly lieutenant-governor of Illinois. He has been a member of the commission since 1949, having been appointed by former President Truman.



FIRST LIFE MEMBERSHIP in the Canadian Industrial Editors Association has been awarded to Charles W. Higgins (right), managing editor of the Canadian National Magazine, "in

recognition of outstanding and conscientious service to the field of industrial editing." Presentation is being made by Robert H. Spencer, past president of the association's council.

port of President Eisenhower's Cabinet Committee on Transport Policy and Organization as a "specific case of the application of analytical academic thinking to a current problem of industrial competition," Mr. Symes said:

"Counting advisory members and work group, fourteen men in all worked on the report. Almost to a man they are college graduates—one is a professor—another had been a professor—and another had been a college president. The report they turned in reflected this intellectual, trained-mind background. Seldom in my busi-

ness career have I seen an analysis that went straighter to the heart of a complex problem and laid it out clearer for all to see. . . .

"The best thing about the report to my mind is that it is an objective study of a complex subject by learned men who are seeking the best answers, not for any one portion of the affected industrial interests, but for the nation as a whole. That is why I think it is an excellent case in point to illustrate the application of analytical thinking—of the type our liberal arts colleges teach—to our industrial civilization."

cities as far apart as Detroit (December 5) and Baltimore (December 13).

The Newark meeting was attended by more than 200. Each seminar will follow the pattern of the Newark meeting. Each is designed to acquaint railroad personnel at the management level with all aspects of the Cabinet Report so they, in turn, will "spread the word" to as many people as possible, be they transportation-minded or not, thus supplementing other ERPC programs to win backing for the report.

If there was one observation that could be made following the Newark seminar, it was that the ERPC seems convinced the Cabinet Committee proposals will never become law unless the public at large is convinced of their worth.

How it's done at the seminars is a method that combines features of the classroom, the theater, the town hall meeting and the modern advertising campaign.

Two groups are conducting the seminars, allowing for sessions in two cities on one day. Each group, or "task force," consists of an educator-moderator and three railroad attorneys who present the formal phases of the program.

They give a detailed analysis of the Cabinet Report complete with slides and dramatic lighting effects at a morning session of the program which is attended by shippers, labor leaders and representatives of other modes of transportation as well as railroad personnel. They also answer questions from the floor.

An afternoon session is restricted to higher railroad officers who hear a summation by one of the attorneys of what the ERPC considers the most important parts of the report. They then split into discussion groups each of which is headed by one of the attorneys and a local railroad man. These six group leaders later form a panel for an interchange of ideas produced in their respective discussions, finally throwing the meeting open for a general question and answer period.

How to sell the report appeared to be the most provocative question aside from interpretive queries relating to some of the report's proposals.

The answer finally decided on was that it can best be sold on two points: First, enactment would mean savings in costs to shippers and on prices to the consuming public; second, current regulation is basically unfair in that it places an undue competitive burden on railroads.

Other topics discussed included the report's effect on volume rates, competition between railroads, inherent advantages of railroad and trucker, the powers of the Interstate Commerce Commission, exempt carriers, and the Brotherhoods and abandonments.

Moderators for the task groups are Dr. Dan W. Dodson and Dr. F. K. Patterson of the New York University School of Education. The participating attorneys include C. J. Henry, Jr., Baltimore & Ohio; W. B. Johnson, Penn-

ERPC "Sells" Cabinet Report

Series of seminars for railroad management stresses need for winning public favor of proposals in the report

The Eastern Railroad Presidents Conference program to "sell" the Cabinet Committee Report to the public gained momentum last week as the first ERPC "task force seminars" were held.

Simultaneous meetings were held November 16 at Newark and Cincinnati and, on November 17, at Pittsburgh and Indianapolis. The "show" continues "on the road" through December 16, playing at 15 other eastern



NEW FULL-LENGTH DOME lounge cars are in service on the Great Northern's "Empire Builder" (above). The full-length dome has 75 seats, most of which are set at a 10-degree angle from the aisle for wider viewing area. Each "Empire Builder" is equipped with three dome coaches and one full-length dome lounge for sleeping car passengers. All the new domes were

built by the Budd Company. A colorful lounge (below, left), for sleeping car passengers is on the lower-level of each full-length dome car. The train's "Great Dome" cars entered service in October. Each coach dome car (below, right), provides 24 top-side seats and 44 lower level seats. Early North Pacific Coast Indian art was the inspiration for interior decor of the cars.



sylvania; W. J. Myskowski, New Haven; L. P. Day, New York Central; D. S. Morris, Chesapeake & Ohio; M. C. Smith, Jr., Erie; and D. L. Farley, Jr., C&O, and D. L. Wilson, PRR, alternates.

Joseph J. Galuppo, superintendent central division, Jersey Central, was in charge of arrangements for the Newark seminar as chairman of the Newark Railroad Community Committee.

Operations

M&StL to Begin New TOFC Service November 25

The Minneapolis & St. Louis will inaugurate piggyback service November 25 between Minneapolis-St. Paul and Peoria, Ill.

The road is publishing trailerload rates competitive with motor carriers, both as to minimum weights and charges. Five 50-ft flat cars have been converted for the new service, and the road will begin its operation with ten 24-ft leased trailer vans.

Negotiations already are under way with other rail carriers for establishment of interline business to and from several major terminals.

Several RRs Announce More Piggyback

The Delaware, Lackawanna & Western again is expanding its piggyback service. On December 1, in conjunction with the New York, Susquehanna & Western, shippers and receivers in the Edgewater, N. J., area will be offered piggyback service to and from points served by the DL&W and its western connections.

On December 12, the Chicago & North Western, and the Lackawanna and its connections, will begin providing interline piggyback service between points served by the roads. On December 16, the DL&W will offer a service between New York and San Antonio, Tex. The Nickel Plate and Wabash will handle the traffic from Buffalo, N.Y., to St. Louis. Beyond St. Louis, the carriers will be the Cotton Belt and the Texas & New Orleans.

Truck Trip-Leasing Ban Delayed Until March 1

The Interstate Commerce Commission has further postponed—until March 1, 1956—the effective date of its long-pending rules prohibiting trip-leasing of motor trucks and truck-rental payments of the revenue-splitting type.

The postponement was from December 1, a date fixed when the commission recently announced modification

RAILWAY

MARKET *Outlook* THIS WEEK

New Equipment

FREIGHT CARS

► *October Orders and Deliveries.*—Deliveries totaled 3,772 cars, compared with 3,118 in September and 1,817 in October 1954, the ARCI and AAR report; orders totaled 12,843 cars, compared with 3,228 in September; November 1 backlog was 61,954 cars, compared with 52,913 on October 1 and 12,853 on November 1, 1954.

Type	Ordered Oct. '55	Delivered Oct. '55	On Order Nov. 1, '55
Box—Plain	4,612	1,598	31,273
Box—Auto	0	0	500
Flat	850	110	2,477
Gondola	2,100	411	5,374
Hopper	3,575	633	13,731
Covered Hopper	1,270	459	3,373
Refrigerator	95	1	922
Stock	0	46	326
Tank	303	487	2,983
Caboose	0	11	234
Other	38	16	771
TOTAL	12,843	3,772	61,954
Car Builders	6,194	2,455	35,979
Company Shops	6,649	1,317	25,985

► *Chesapeake & Ohio.*—Will spend \$45,000,000 for 6,000 new freight cars, including 4,500 coal hopper cars and 500 covered cars, to be built in Russell, Ky., shops; 1,000 box cars will be built by ACF Industries.

► *Denver & Rio Grande Western.*—Ordered 100 50-ton box cars, 100 50-ton flat cars, ACF Industries; 25 70-ton covered hopper cars, Pullman-Standard; estimated cost \$2,010,000; expected delivery: Covered hopper cars, February 1956; flat cars, April 1956; box cars, third quarter 1956.

► *Minneapolis, Northfield & Southern.*—Ordered two 50-ton PS-1 box cars, Pullman-Standard; unit cost \$7,060; delivery April 1956.

► *Southern Pacific.*—Directors authorized purchase of 10,700 freight cars, estimated cost \$90,000,000; most will be built in SP shops at Sacramento, Cal., and Houston, Tex.; included are 6,600 box cars, 1,550 gondola cars, 1,000 hopper cars, 500 covered cars and 1,050 flat cars; 4,900 box cars will have special-type sliding double doors with two 8-ft sections, permitting use of cars as 8-ft single-door cars or 16-ft double-door cars; 250 flat cars will be specially designed for piggyback service.

► *Wabash.*—Ordered 100 70-ton covered hopper cars, Pullman-Standard; delivery expected April 1956.

► *Western Maryland.*—Ordered 300 70-ton coal hopper cars, Bethlehem Steel, and 50 50-ton flat cars, Greenville Steel Car; estimated cost \$2,695,000; delivery expected second quarter 1956.

LOCOMOTIVES

► *Canadian National.*—Ordered 35 diesel units from General

RAILWAYS IN THE MARKET—THIS WEEK

Motors Diesel, Ltd., for Newfoundland district. Included are 29 1,200-hp units, six of a lighter type. Delivery, to begin early next summer, will complete dieselization of the district.

► *Pennsylvania-Reading Seashore Lines*.—Ordered six 1,600-hp road units and six 1,200-hp switching units, Baldwin-Lima-Hamilton.

IRON & STEEL

► *Louisville & Nashville*.—Ordered 35,000 net tons of 132-lb rail, Tennessee Coal & Iron division, United States Steel; cost \$5,600,000.

SPECIAL

► *Cuban RR Wants Rails, Accessories*.—The Ferrocarriles Occidentales de Cuba will buy about 70,000 tons of rails, plus accessories, in next six years, says Foreign Commerce Weekly; specifications are available from Commercial Intelligence Division, Bureau of Foreign Commerce, Washington 25, D.C.

► *Greek RR Wants Wooden Ties*.—The Piraeus-Athens-Peloponnesus requests bids for supply of 600,000 wood ties, reports Foreign Commerce Weekly; bidding specifications may be borrowed from Commercial Intelligence Division, Bureau of Foreign Commerce, Washington 25, D.C.

► *India Wants Steel Fishplates*.—The Iron & Steel Controller, Calcutta, requests bids for 2,425 tons of fishplates, says Foreign Commerce Weekly; bidding forms and specifications are available from India Supply Mission, 2536 Massachusetts avenue, N.W., Washington 8, D.C.

► *Louisville & Nashville*.—Directors authorized \$140,000 expenditure for installation of radio communications on main line freight trains.

► *New Orleans Public Belt*.—Experimental radio system will be installed throughout lower district; four yard locomotives and a yardmaster's automobile will be equipped with radios; base station will be set up at Pauline Yard station; if test is successful, all trains and yard stations will be similarly equipped.

New Facilities

► *Canadian National*.—Shops and engine houses in Newfoundland district are being modified to service diesel locomotives, because of approaching 100% dieselization. Certain passing tracks are being extended to accommodate longer passenger and freight trains.

► *Pacific Great Eastern*.—The 330-mi extension from Prince George, B.C., via Dawson Creek to Fort St. John is about 10% completed; the 60-mile segment between the latter two points had not previously been announced; a 40-mi extension from North Vancouver, B.C., to Squamish, about 60% complete, will cost an estimated \$10,500,000, replace a railroad-operated steamship service, and give the PGE a rail connection with Vancouver.

► *Union Pacific*.—Purchased 90 acres of flood-free land in West Topeka, Kan., at undisclosed price, for industrial development; industrial trackage and utilities will be provided for property, which is on main line about six miles from center of Topeka.

of the rules. The modifications had the effect of liberalizing the regulations (*Railway Age*, October 24, page 12).

Figures of the Week

Freight Car Loadings

Loadings of revenue freight in the week ended November 12 totaled 796,632 cars, the Association of American Railroads announced on November 17. This was a decrease of 12,077 cars, or 1.5%, compared with the previous week; an increase of 87,883 cars, or 12.4%, compared with the corresponding week last year; and an increase of 69,574 cars, or 9.6%, compared with the equivalent 1953 week.

Loadings of revenue freight for the week ended November 5 totaled 808,709 cars; the summary, compiled by the Car Service Division, AAR, follows:

REVENUE FREIGHT CAR LOADINGS			
For the week ended Saturday, November 5			
District	1955	1954	1953
Eastern	136,477	112,819	124,071
Alleghany	149,524	122,286	144,961
Pocahontas	63,095	50,007	51,163
Southern	136,369	121,140	124,013
Northwestern ..	121,640	96,467	115,345
Central Western ..	139,296	135,889	127,195
Southwestern ..	62,308	57,418	60,400
 Total Western Districts	 323,244	 289,774	 303,660
 Total All Roads	 808,709	 696,026	 747,868
 Commodities:			
Grain and grain products	55,318	55,778	53,213
Livestock	14,598	14,035	14,530
Coal	140,429	125,158	123,446
Coke	13,503	8,683	12,326
Forest Products	45,237	44,771	44,046
Ore	70,144	34,554	59,467
Merchandise l.c.l.	65,226	64,399	69,418
Miscellaneous	404,252	348,702	371,422
 November 5 ..	 808,709	 696,026	 747,868
October 29	835,396	736,233	780,843
October 22	834,499	745,945	804,413
October 15	827,245	721,336	822,582
October 8	807,035	702,910	804,066
 Cumulative total, 44 weeks	 32,221,528	 28,877,570	 33,275,779

Rates & Fares

East's Streamlined Mixing Rule Will Get New Hearing

The Interstate Commerce Commission has reopened for further hearing the case wherein it has issued an order requiring eastern railroads to cancel the "streamlined" version of their Rule 10.

The order has never become effective, the effective date having been postponed from time to time since the order was originally issued by Division 4 more than a year ago. The commission upheld the division in a decision issued last April (*Railway Age*, May 2, page 17).

The "streamlined" version is that



Down time is no joke. Say it happens when a clutch facing or a brake lining wears out.

If you replace with a Caterpillar-built part, here's what you're sure of: a friction part that's made of a material with high torque capacity but low friction loss, a long-wearing material that *really* resists glazing and chipping, a tough material that's been through rugged tests in the laboratory, on the proving ground, and out on actual jobs. In short, you're sure of *less* down time in the future.

If you replace with a substitute part—can you be sure of anything? **And remember, your Caterpillar Dealer will carry your inventory of genuine Cat parts.**

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.



These are genuine CAT* brake linings. They're made of a specially designed molded asbestos material. You can't buy better anywhere.

CATERPILLAR*

*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.



which permits use of the mixing rule in combination with all-commodity rates, i.e., it provides that commodities rated lower than the all-commodity basis may be included in a mixed carload taking an all-commodity rate and charged for at the lower rate. The requirement that it be cancelled was part of a commission plan to put on a parity basis the all-commodity rates (used principally by freight forward-

ers) of railroads and truckers in eastern territory.

The reopened railroad case in which the mixing rule is in issue is docketed as No. 31006, the related truck-rate case being No. MC-C-1331. Petitioners seeking the reopening included railroads, forwarders and the National Industrial Traffic League. The reopening order said the date for the further hearing would be set later.

So far as railroads are concerned, he said, there are two categories of traffic—competitive and non-competitive, as between railroads and other forms of transportation.

The "large and increasing volume of traffic which is no longer exclusively available to the railroads" constitutes the competitive area. "For all practical purposes, the character and nature of the traffic as well as its location are such that the shipper has complete freedom in his choice of the transportation service best able to meet his requirements and his price."

One-Sided Freedom—While the shipper does have this complete freedom "to bargain between several modes of transport and to select that which he regards as most effective for his purpose," Mr. Gordon pointed out, "railways are not free to determine the service they have to offer nor the price tag they put upon it.

"Railways are not free to determine the nature and content of service nor the rates to be charged, but are enmeshed in a regulatory framework which stipulates such criteria as 'just rates,' 'fair rates,' 'non-discriminatory rates,' and so on, as well as a whole host of conditions of service implicit in the definition of railways as a common carrier. Such stipulations cannot be imposed effectively upon competing forms of transport so I find it difficult to understand why railways, like their competitors, should not be permitted to offer or withhold service and, if offered, to set a market price dictated purely and objectively from the point of view of costs and quality and conditions of service made available by other carriers.

"The railway industry must pay market prices for its requirements, but is denied the market price for its product."

Competition would dictate rates in a free market area, the CNR president declared, and the public would benefit. In the non-competitive area of traffic, on the other hand, "freedom of action by railways may not yet be in the public interest." This non-competitive traffic is chiefly that which, because of distance, tremendous weight or enormous bulk, only railways are prepared to handle. Usually such traffic must have cheap transportation if its movement is to be economically possible, yet if it does not move the public interest will suffer.

"In such circumstances," said Mr. Gordon, "railways enjoy what can be described as a 'functional monopoly,' and I concede the need for continued regulation . . . to substitute for the missing element of competition."

Since the rates permissible in this regulated area necessarily must be marginal or even submarginal, measured against railroad costs, "the railway industry could not survive," the speaker emphasized, "unless it was enabled to support this burden from other sources."

"That is exactly the point of my suggestion, namely that the best source

Management Speaks

Competition Should Dictate Rates

In the public interest, Donald Gordon asserts, rate regulation is desirable only where railways enjoy a "functional monopoly"

The public is "paying more for its transportation service than is necessary," President Donald Gordon of the Canadian National last week told the Economic Club of New York. To a gathering of several hundred leaders of industry, banking and education,

he explained how unrealistic regulation of railroad freight rates both in his country and the United States, deprives shippers "of an opportunity to get the service which best suits their needs in terms of cost and quality."



SPECIAL ALUMINUM-INGOT FLAT CARS of the Great Northern are to be placed in service between Kaiser Aluminum's Mead, Wash., reduction plant and the Trentwood, Wash., rolling

mill. Twenty-four of the specially designed cars are being constructed by the GN. Each will accommodate 28 5,000-lb aluminum rolling ingots (Railway Age, August 15, page 8).

is to give freedom of action to railways in the free competitive market area, and that this will in due course produce such volume of *profitable* and *appropriate* rail traffic as will enlarge substantially the ability of the railway industry to carry the burden of that traffic which continues to be rate-regulated in the public interest.

"When railways are able to quote the price for their services and set conditions for that service in terms of a full recognition of competing facilities available to shippers, then the best instrument of transportation will win out in the race.... The shipper will benefit through having available to him the most effective transportation service at the lowest price which market conditions can produce. Moreover, each form of transportation will then have compelling incentive to strive for ways and means of improving service as well as price, and this always to the advantage of the consumer."

Law & Regulation

Revised ICC Practice Rules

The revision of the Interstate Commerce Commission's General Rules of Practice which became effective November 1 included changes announced in an October 20 notice. As reported in *Railway Age* of October 24, page 10, changes announced in an earlier notice were also involved in the November 1 revision.

Changes announced in the October 20 notice incorporated in revised Rule 13 a provision stipulating that all persons, whether or not admitted to practice under Rule 9, must, in their representations before the commission, conform to the code of ethics published by the Association of Interstate Commerce Commission Practitioners.

The commission is now preparing a revised edition of the rules, which will reflect all changes made since 1942. It will also include a section containing special rules which have been prescribed in recent years, such as those relating to the Fourth Section, Motor Carrier, and Suspension boards.

Organizations

The 40th annual dinner of the **Traffic Club of Minneapolis** will be held at the Hotel Nicollet, Minneapolis, December 1, at 6:30 p.m., with William H. Schmidt, Jr., executive editor, *Railway Age*, as speaker.

John W. Kunker, signal supervisor, Baltimore & Ohio, has been elected chairman of the **Railroad Communi-**

ty Committee of Greater Cincinnati; T. H. Willings, division freight agent, New York Central, vice-chairman; and E. Brent Miller, assistant to superintendent, Chesapeake & Ohio, secretary.

A panel discussion on transportation will be held at the annual meeting of the **United Fresh Fruit & Vegetable Association** in the Hotel Roosevelt, New Orleans, at 9 a.m., next February 1. Dr. John H. Frederick, professor of transportation, University of Maryland, and a member of the advisory council to the Secretary of Commerce, will discuss the Presidential Advisory Committee report on transportation policy, and pending legislation. A report on the refrigerator car situation will be presented by the chairman of the association's refrigerator car committee.

A meeting of the **Trans-Missouri-Kansas Shippers Board** will be held at the Hotel De Soto, St. Louis, November 30-December 1. Speakers will be Arthur H. Gass, chairman, Car Service Division, Association of American Railroads, and Harold F. Hammond, executive vice-president, Transportation Association of America. Mr. Hammond will address a luncheon on December 1, to be held jointly with the **Traffic Club of St. Louis** and the **Chamber of Commerce of Metropolitan St. Louis**; his subject, "Tipping the Scales in 1956."

The 1956 annual meeting of the **Associated Traffic Clubs of America** will be held October 24-25, at Miami Beach, Fla.

Financial

C&NW Board Votes to Continue Merger Studies

Directors of the Chicago & North Western, at their November 11 monthly meeting, considered the report of William Wyer & Co., railroad management consultants, on the possibility of consolidating or coordinating facilities with the Milwaukee.

The C&NW board authorized "extensive additional studies," although it did not indicate whether consolidation or coordination of facilities would be emphasized in the studies.

Milwaukee directors, in an earlier meeting, had voted to continue the cooperative studies, with emphasis on consolidation (*Railway Age*, November 14, page 68).

Substantial savings can be made by working with the Milwaukee, the North Western board said, provided many difficult problems can be worked out. Preliminary studies indicate that a large initial investment would be required, the board emphasized. Some aspects of the program will require many months of study, it added, but the board expressed its desire "to examine every opportunity which may exist for improvement of the operating opportunities."

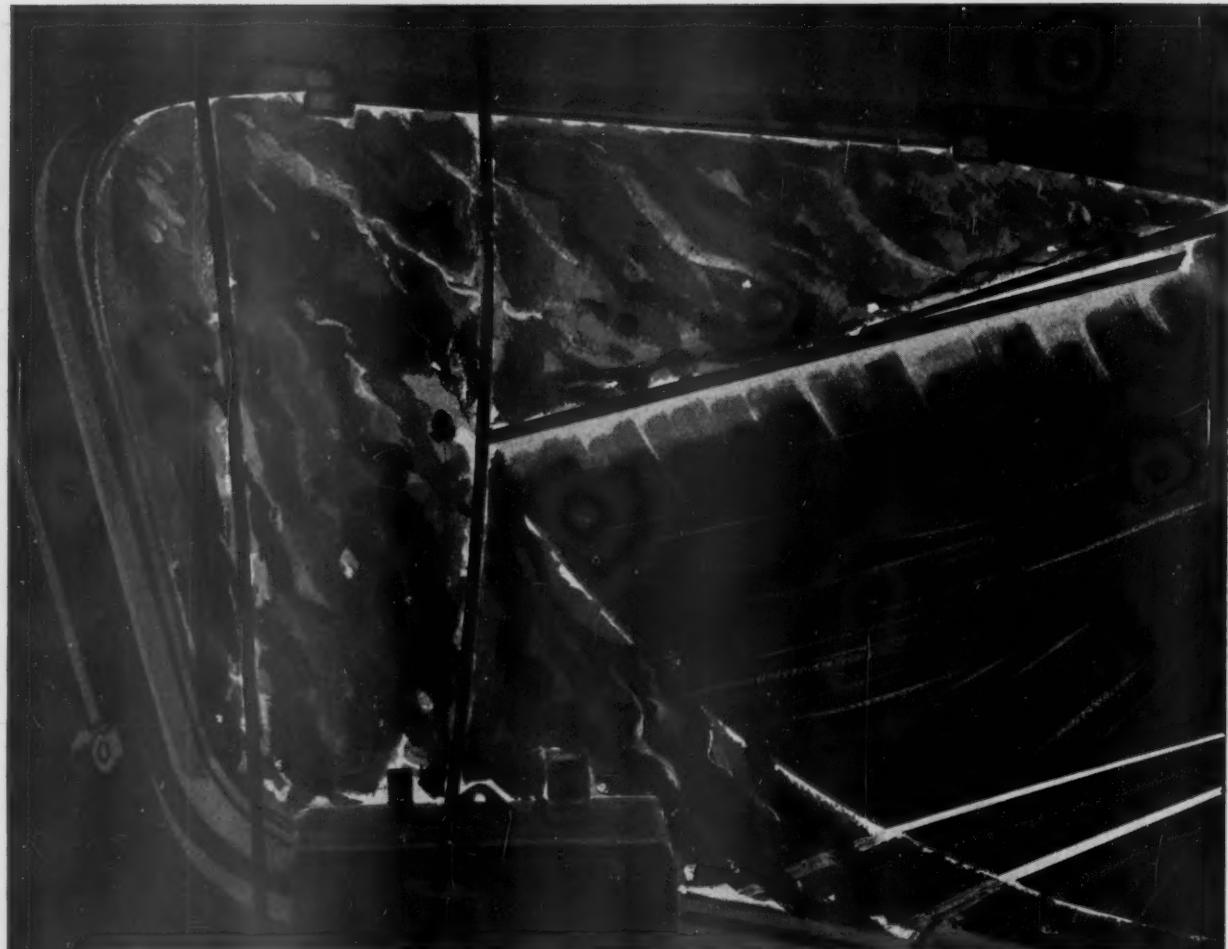
Security Price Averages

	Nov. 15	Prev. Week	Last Year
Average price of 20 representative railway stocks	97.03	93.01	75.75
Average price of 20 representative railway bonds	97.96	97.84	96.89



PAYROLL, AND RELATED REPORTS and statistics for approximately 33,000 New York Central employees being prepared on an IBM 650 elec-

tronic data-processing machine. The 650, in operation at Utica, N. Y., is one of several being installed by the railroad.



DEPENDABILITY

What lies ahead?

When the signal says stop, it takes only the touch of an experienced hand to keep the train under sure control. Rain or shine—in summer's heat or winter's ice—railroad men all over America rely on today's braking systems . . . and on time-proven Diamond S brake shoes . . . for utmost dependability.

What lies ahead in brake shoes? Only continued research and laboratory testing, together with countless miles of road service, will tell. But one thing is sure:

Tomorrow's progress will be built on today's solid foundation
of utmost dependability

You can depend on it.

BRAKE SHOE AND CASTINGS DIVISION

AMERICAN
Brake Shoe





Questions

and Answers FOR THE TRANSPORTATION DEPARTMENT

HERE ARE THE ANSWERS TO ANOTHER RAILWAY AGE CAR SERVICE "QUIZ":

The Problem—as presented in the October 10 issue: A shipper at Oklahoma City has 15 box cars for loading to 15 destinations. To which destination did he send the cars, so that when unloaded they would be: (1) on the owning road; or (2) on a road which was a direct connection of the home road?

Destination	Delivering Carrier
Baltimore, Md.	TP&W—PRR
Buffalo, N. Y.	NYC
Charlotte, N. C.	GM&O—Sou
Cheyenne, Wyo.	UP
Helena, Mont.	CB&Q—NP
Louisville, Ky.	MP—IC
Mobile, Ala.	GM&O
Nashville, Tenn.	Wab—L&N
Omaha, Neb.	CMStP&P
Portland, Ore.	D&RGW—SP
Raleigh, N. C.	C&O—SAL
St. Petersburg, Fla.	T&NO—L&N—ACL
Seattle, Wash.	CB&Q—GN
Toronto, Ont.	NYC—CPR
Wheeling, W. Va.	NKP

Cars available for loading were of the following ownerships: B&M, B&O, C&O, C&EI, CTSE, CNR, D&H, Erie, GM&O, GTW, M&StL, NWP, RF&P, SP&S, TC.

The Answer

The shipper loaded the cars as follows:

Destination	Delivering Carrier	Car
Baltimore	TP&W—PRR	D&H
Buffalo	NYC	GTW
Charlotte	GM&O—Sou	TC
Cheyenne	UP	SP&S
Helena	CB&Q—NP	M&StL
Louisville	MP—IC	B&O
Mobile	GM&O	GM&O
Nashville	Wab—L&N	C&EI
Omaha	CMStP&P	CTSE
Portland	D&RGW—SP	NWP
Raleigh	C&O—SAL	RF&P
St. Petersburg	T&NC—L&N—ACL	C&O
Seattle	CB&Q—GN	CNR
Toronto	NYC—CPR	B&M
Wheeling	NKP	Erie

This quiz, seemingly, has been more difficult of correct solution than those which have preceded it. Out of 139 answers received up to the time of going to press, only 20 were correct. Of the 20 correct, only 14 matched the "preferred answer," which creates a minimum of empty mileage required to place the car on owner's rails after release.

It will be recalled that there were two conditions to be met, i.e., (1) cars must be assigned *strictly* in accordance with Car Service Rules 2 and 3; and (2) cars must be released either on owner's rails, or on the rails of a direct connection of the owner.

Strict observance of Rule 2 required that the GM&O and CTSE cars be routed via owner's rails (Rule 2-C-1) as these two ownerships did not come under 2-C-3. Hence, the GM&O car had to go to Mobile and the CTSE to Omaha. The other 13 cars came within the broader applications permitted by Rules 2-C-3 and 3-A-5. Several variations in loading were possible under these rules and answers have been considered as correct if the applications fulfilled the two conditions mentioned above, even though the empty mileage involved in placing the cars on owner's rails after release was substantially more, in some cases, than

that incurred in the "preferred answer."

Answers still are coming in. In this space, December 5, we'll print names of other respondents whose correct answers are postmarked prior to Saturday, November 19.

The names of those whose correct answers have been received so far are:

Ernest A. Abrams, relief clerk, Erie, Newark, N. J. R. J. Carrico, car service agent, Car Service Division, AAR, Washington, D. C. M. N. Cook, agent, Erie, Bloomfield, N. J. J. K. Cubby, agent, 28th St station, Erie, New York, N. Y. T. DeGreff, agent, Greenwich St station, Erie, New York, N. Y. V. J. Derner, agent, Erie, Duane St station, New York, N. Y. Richard C. Engle, car distributor, Reading, Reading, Pa. E. J. Garofano, agent, Erie, Nutley, N. J. W. J. Hanley, chief clerk, Erie, Newark, N. J. W. C. Harbourne, agent, Erie, Newark, N. J. Ellis V. Hunt, revising clerk, Missouri Pacific, Monroe, La. Ruth Larivee, stenographer, superintendent's office, Erie, Jersey City, N. J. Ernest A. Lehmann, student, University of Minnesota (summer employee of CRI&P), Minneapolis, Minn. E. P. Miller, district manager Car Service Division, AAR, New York, N. Y. F. F. Moniot, demurrage clerk, Erie, Newark, N. J. W. J. Moynihan, clerk, Erie, Newark, N. J. D. C. Page telegraph operator, Grand Trunk Western, Lowell, Mich. W. C. Preston, assistant general superintendent transportation, Great Northern, St. Paul, Minn. William H. Smith, car clerk, Erie, Bloomfield, N. J. A. F. Swinburne, executive assistant, Car Service Division, AAR, Washington D. C.

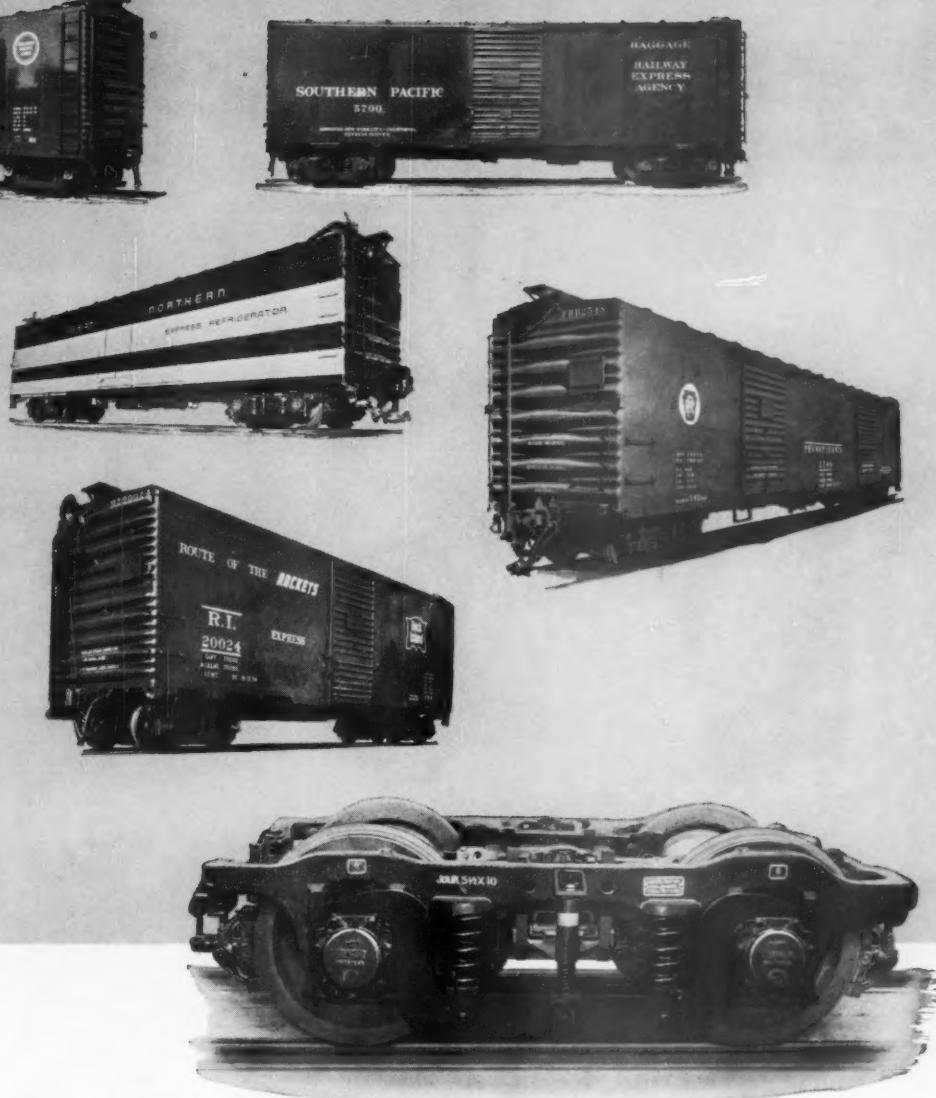
CONDUCTED By G. C. RANDALL, district manager, Car Service Division (ret.), Association of American Railroads, this column runs in alternate weekly issues of this paper, and is devoted to authoritative answers to questions on transportation department matters. Questions on subjects concerning other departments will not be considered, unless they have a direct bearing on transportation functions. Readers are invited to submit questions, and, when so inclined, letters agreeing or disagreeing with our answers. Communications should be addressed to Question and Answer Editor, Railway Age, 30 Church Street, New York 7.

"One of the delayed objectives of the Eisenhower administration's domestic program is amendment of the Interstate Commerce Act to provide, among other things, a more flexible rate structure in transportation. . . . The fundamental consideration, from the administration's standpoint, is that the transportation rate structure is sorely in need of flexibility. . . . The Presidential Advisory

Committee proposes to create such fluidity by Congressional amendment of the Commerce Act that will permit any carrier to fix new rates on its own responsibility within a fixed minimum and a fixed maximum. This sounds reasonable. . . . Congress, of course, will have to be persuaded that this is true. . . ."

—Providence (R.I.) Journal

**Easy on
Lading
and
Car!**



**Easy on
Track and Roadbed!**

Commonwealth BX Truck
Furnished for clasp brakes or single shoe brakes

Smooth Riding Commonwealth BX Trucks Reduce Damage Claims

For all types of commodity cars operating in high speed service, COMMONWEALTH BX Trucks assure safe, smooth performance, greatly reducing damage to lading, car body and track structure. They are accepted for operation in all high speed passenger trains without exception.

COMMONWEALTH BX Truck design incorporates in a simplified arrangement many of the

fundamental features of passenger car trucks such as equalization, swing motion and one-piece cast steel truck frame with pedestals cast integral to insure perfect alignment of wheels and axles.

For outstanding protection to lading, cars and track, and for most economical operation with minimum upkeep costs equip your head-end cars with COMMONWEALTH BX Trucks.



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The progress and the development of our nation is a collective undertaking. It involves millions of people whose contributions are many and varied.

The same basic principle which governs our national well-being applies equally to the economic development of cities and communities

In each case, there is involved a complicated maze of interdependence . . . for neither individuals nor business enterprises can live unto themselves. They must live and work together . . . with faith in the inherent honesty of each other . . . and respect for the personal rights and the individual liberties of each other.

For a hundred years, the railroads have been a vital part of the economic life of the nation. They have influenced the lives of millions and helped shape the destiny of the nation.

More than any single industry, the railroads helped transform the nation from a rugged wilderness into a land of prosperity, power and plenty.

The railroads have been criticized and praised. They have suffered adversity and enjoyed prosperity. In times

of disaster, they have rescued the helpless and aided the needy. They have been a tower of strength in war, and a source of strength in peace.

Of the several modes of transportation, ONLY the railroads have Industrial Departments devoted exclusively to (1) serving the commercial and industrial enterprises located on their rails and (2) attracting new enterprises to the communities they serve.

In cooperation with community leaders . . . and others . . . our Industrial Department located on our railroad in the various communities of Texas, Louisiana and New Mexico in 1954 a total of 102 new industries, with a plant investment estimated at \$110,000,000 and employing 2,780 people.

The railroads often are the unsung . . . and unrecognized . . . contributors to the economic development of the communities they serve. They seldom, if ever, take credit for securing new industries, even when their contributions are a major factor.

But whether publicly recognized or not, the railroads are mindful of their responsibility to the people with whom they live and work . . . and serve.

They strive to be good neighbors . . . helpful and understanding.

That is a sound and rewarding policy. It is the kind of policy the men and women of our railroad live and work by.

W. G. VOLLMER
President



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Safer Shipments

—via Union Pacific and N-S-F

On-time delivery of undamaged shipments is a sure way to increase shipper confidence. Rolling stock that stays out of maintenance shops boosts railroad efficiency, cuts out-of-service costs.

There are two big reasons why Union Pacific is using Nailable Steel Flooring* in its gondolas and boxcars. N-S-F provides the secure construction necessary for heavy loadings, with the strength of

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Complete engineering and cost data available from Stran-Steel Corporation, Ecorse, Detroit 29, Michigan. Sales representatives in Chicago, Philadelphia, St. Louis, Atlanta, Omaha, Denver, San Francisco, Montreal and New York.

rugged steel. With its unique nailing grooves for blocking, nails are clinched tight in grips of steel, yet can be easily removed.

What's more, now that gondolas and boxcars are giving increased service with N-S-F, it is easy to see why this long-life flooring made of low-alloy N-A-X HIGH-TENSILE steel has been purchased for use in over 28,000 cars on 57 railroads.

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NAILABLE STEEL FLOORING PAVES THE WAY TO ALL-STEEL FREIGHT CARS

Here's why **FREIGHT SOLID JOURNAL**

It's not just a question of low initial cost: you also choose solid-type bearings because they offer the utmost in load capacity, protection for lading, ease and simplicity of maintenance and many other advantages. They all add up to a **BIGGER NET RETURN** per car dollar invested.

SURE, you get up to 10% more cars for your money, up to 10% more car availability, and hence more freight revenue per car dollar invested with low-cost solid bearings. But there are many other inherent advantages, too. Let's take a quick look.

1. Unrestricted as to Speed and Load

Steel, stone, ore — you can take the biggest loads with solid bearing cars — sometimes up to 20 tons per axle. But solid bearings reduce these maximum loads to about 700 pounds per square inch — well within bearing capacity. Compressive strength of the babbitt at highest normal temperatures is over 7200 psi. With oils of adequate film strength and stability you can always operate solid bearings with loads up to axle capacity.

What about speed? Oil film pressures increase with speed. You get a thicker film of oil that more than compensates for any viscosity change. Oil film thickness is the criterion of solid bearing safety. With solid bearing cars you're actually better off in the higher range of freight train speeds.

2. Ease and Simplicity of Maintenance

The AAR journal bearing assembly is a simple standard. Internal parts can be easily inspected or removed — without special tools or equipment, with the minimum of effort and time.

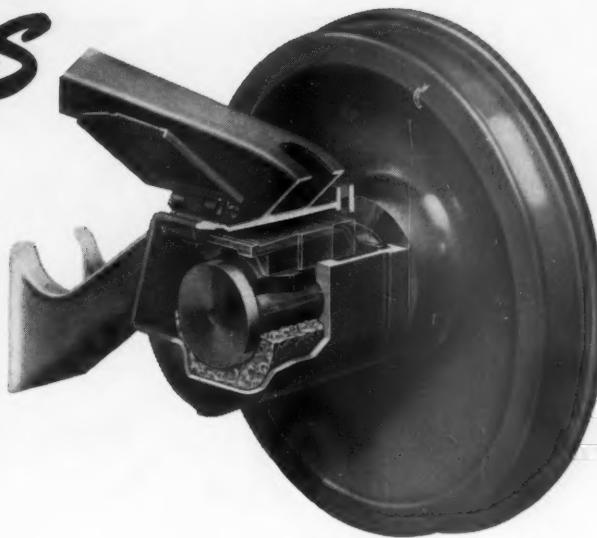
There's no need for expensive shop facilities and no skilled labor is required. Stocking of parts is simple and replacements are always available at any repair point of any line in the country. Moreover, it has been demonstrated many times that all labor and material costs for solid bearing maintenance come to less than the fixed charges alone (interest and depreciation) on the extra investment required for expensive roller-type bearings.

3. Greater Protection for Lading

With solid journal bearings lading gets the smoothest possible ride on standard freight car trucks. That's because solid-type bearings cushion lateral shocks and vibrations. There's $1/2$ " free lateral movement of the bearing on the journal, and lateral shocks are flexibly controlled—not rigidly opposed.

CARS NEED BEARINGS

This simple, standard solid journal bearing assembly is the most practical, most economical type of freight car bearing obtainable. What's more, there are low-cost means for improving it still further, without departing from the inherent advantages described below. That's why solid bearings are right for railroads—in performance and in cost!



This means less wear and tear on car bodies, trucks, wheel flanges and rails, too!

4. Weight and Resistance Advantages

In motion the solid bearing glides on a film of oil like a skater on ice. Dynamic resistance of solid bearings is as low or lower than that for any other type of bearing — averages less than one pound per ton regardless of the outside temperature or speed of operation.

Solid bearings also save many tons excess dead weight on every moving train. Lighter weight, plus lowest possible resistance in pounds per ton, puts the maximum tractive effort of the locomotive to the business of moving goods.

You need less horsepower hours of energy to move a train from A to B when cars are solid-bearing-equipped.

5. Improved Dependability in Freight Service

Solid bearing performance is getting better all the time. In 1954, there was only one set-off for every 15 cars — equivalent to each car operating 15 years per road failure of a bearing. And this average car was almost 20 years old. You can bet that other

bearing types would have a tough time trying to beat that record.

Better still, the means are now available to reduce journal box servicing requirements and get still better solid bearing performance. Periodic servicing—on a calendar basis—and 3-year repacks are just around the corner. Improved bearings and lubricators are now being installed. Bearing and dust guard life will probably be doubled.

You save money in many ways with solid bearing cars, and you will save even more in the future. With so many inherent advantages, you just can't beat solid-type bearings for railroad rolling stock!

Magnus Metal Corporation, 111 Broadway, New York 6; or 80 E. Jackson Blvd., Chicago 4.

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Solid Bearings

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Subsidiary of NATIONAL LEAD COMPANY





Chipman Chemical Company weed killers, brush killers and application service are backed by over 40 years of experience in serving railroads. An extensive line of weed, grass and brush killing chemicals is available to meet varying conditions. Included are the following:

Atlacid	Atlas "A" Arsenical
Chlorax	Atlas "D"
Chlorax "40" • Chlorea	Brush Killer
TCA-Chlorax	Telvar W
Methoxone-Chlorax	Borax • Dalapon

Let us solve *your* weed problems with the *right* chemicals and application service.

16 Strategically Located Chipman Plants



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Chemical Company, Inc.

Railroad Div. Headquarters: 608 So. Dearborn St., Chicago 5

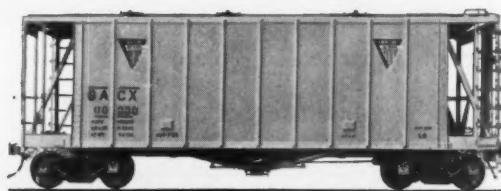
Executive Offices: Bound Brook, New Jersey





No sanitation problems
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**Bulk shipping of dry, granular and powdered
products in General American Airslide[®] Cars
is safer, easier—and costs less!**



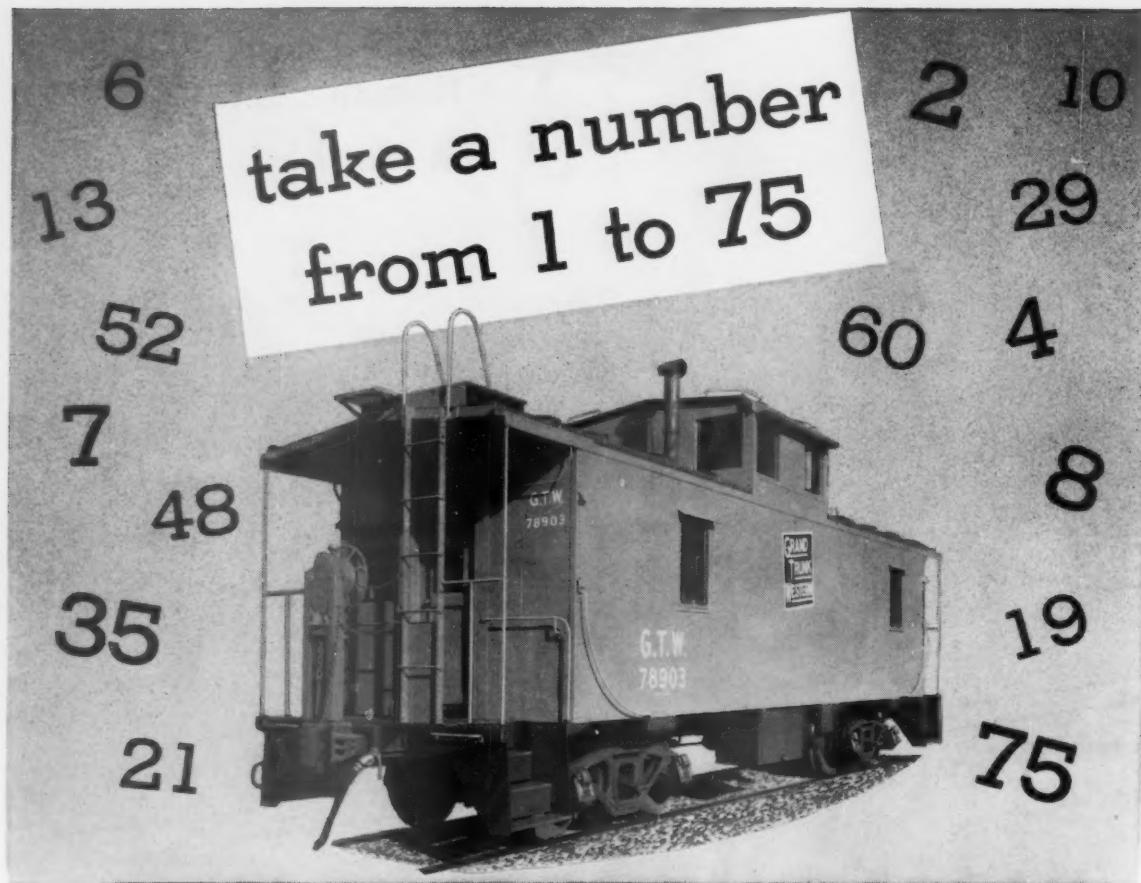
Over 1000 Airslide Cars now in service or
on order. A small blower is all you need
to unload cars into any conveying sys-
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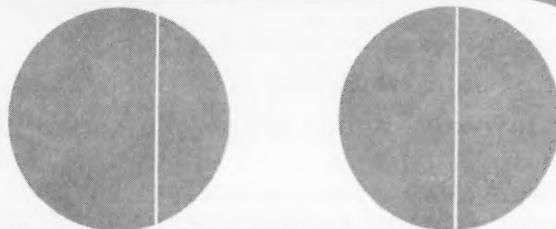


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Automation—a Danger Under Over-Regulation

Some of the union people are giving public evidence of a lot of worry about the pervasive industrial development known as "automation"—which is nothing more nor less than what used to be called "mechanization," but supplemented and accelerated, especially by electronic devices. Management people have been just as concerned to insist that the effects of automation will be generally beneficial.

It is the belief of this paper that the unionists are wise for worrying—and that the industrialists who defend automation, as a principle, are on equally sound ground. The key to resolving the unionists' fears, and making sure that the optimistic predictions of the industrialists become a reality, lies entirely in the degree of economic and political sense which accompanies the progress of automation. Let's consider a couple of hypothetical cases—*A*, where sound politico-economic principles are observed, and *B*, where they are not.

Case A—a factory turning out any product of wide use (it could be automobiles or men's suits or electric iceboxes) introduces automation to the degree that it can produce as many units with 500 employees as it could before with 1,000. But this doesn't mean that 500 men lose their jobs. The company passes along to consumers in reduced prices a large part of its saving in cost. Demand is stimulated so that, even if the manufacturer does use fewer men per unit of production, his production is so greatly increased that he probably doesn't lay off any production workers. And, even if he does have to lay off a few of them, their lost jobs are more than offset by additional employment in the building of new plant space, constructing new machinery, and in distributing the increased output. Labor thus loses no jobs; and everybody is better off, because more people, even without raises in wages, can afford to buy more of this company's products than before.

Case B is a factory producing, let us say, fire engines. Suppose it is partly automatized, so it turns out just as many units with 500 men as it formerly did with 1,000. But suppose, in this case, that the price of fire engines is regulated by government and the government says to this manufacturer: "No, you cannot reduce the price of your

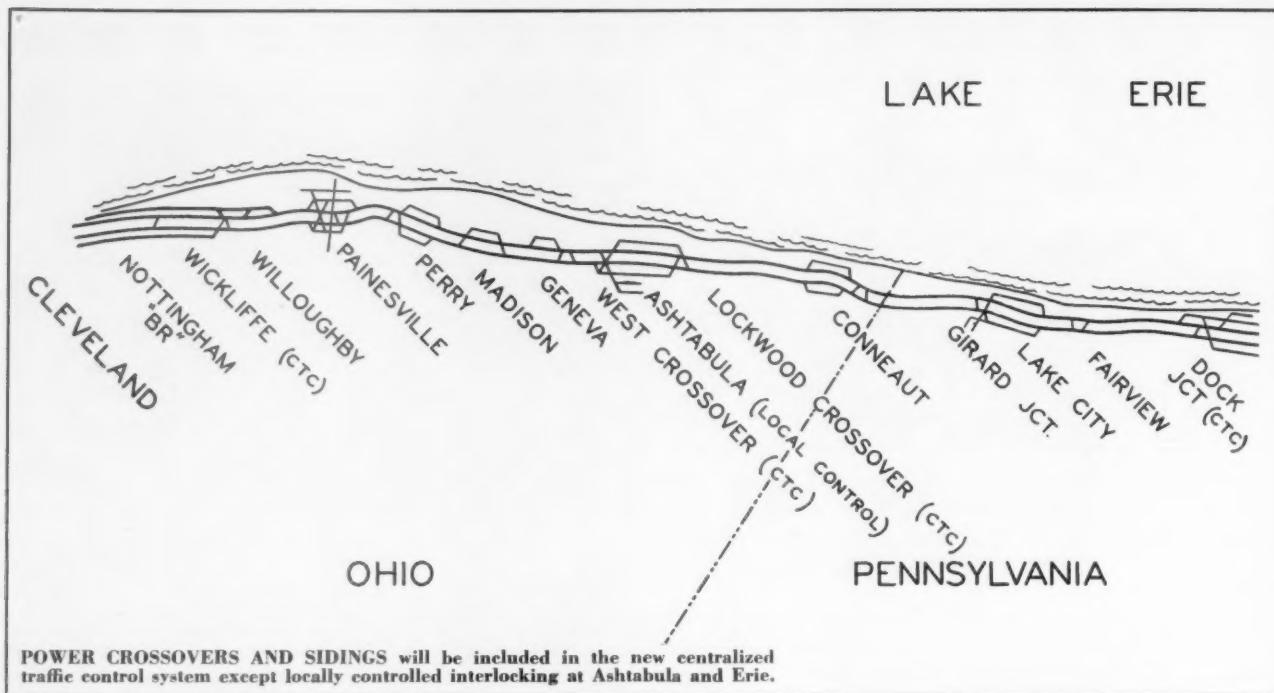
fire engines because that would enable you to take business away from your high-cost competitors; and that would be bad." So this fire-engine manufacturer cannot offer prices which will enable him to sell any more fire engines than he did before. Accordingly, he discharges half his employees, because there is no increased production to absorb them. Maybe the manufacturer will have a larger profit for himself, and maybe he will greatly increase the wages of his remaining employees—but such things won't greatly help the 500 men that have been laid off.

Automation, then, is a great public benefit—including the benefit to labor—*only* if the savings are largely passed along to the public in lower prices, thereby increasing consumption and production. If the unions insist on so increasing wages that fewer employees, under automation, get as much pay as the higher number of employees did before automation—then automation is a threat to labor rather than a benefit. Similarly—if some government agency steps in and forbids the producer to take advantage of his lower costs in reducing prices to consumers, for fear he will take business away from his competitors—then, here again, automation may injure labor.

The progress of automation is nothing new. It is so much a part of industrial habit in America that it is not likely going to be stopped by political action. But political action about automation, while it can't do much to retard the process, can do a great deal to make the results partly harmful rather than wholly beneficial.

For example, the cost of railroad service has been greatly reduced (relatively, of course, rather than absolutely) by dieselization. There are many instances where this reduced cost could have been passed along to shippers—to have held or attracted their traffic to the rails—but the regulatory authorities refused to permit the low-cost railroads to bid low enough to get the business. The benefits of the steady process of improved railroad efficiency have, thus, not been allowed to go to labor (in more secure railroad employment) nor to the public (in lower costs of transportation), as would happen if the railroads were less restrictively regulated than they are.

The Cabinet Committee Report on Transportation—which recommends greater freedom for the railroads in competitive pricing—is, thus, a timely plan to enable the transportation industry to keep pace with automation. This freedom is needed to make automation in transportation a certain benefit to the public welfare instead of a mixture of good and bad.



PROGRESS REPORT ON NEW YORK CENTRAL Four Tracks to Two, with CTC

In May, the New York Central disclosed a plan for removal of two main tracks on 163 road miles of what is now four-track main line between Cleveland and Buffalo. This is being accomplished by installation of centralized traffic control for train movements in both directions on each of the two remaining tracks. Planning and early stages of construction have proceeded far enough for *Railway Age* to publish this progress report, including many details not previously available.

This CTC project, to cost \$6 million, is expected to pay for itself through reductions in maintenance and operating expenses. In addition, a large quantity of 127-lb rail and ties removed from two tracks taken up will be available for use elsewhere.

The two outside tracks will be taken up. On Track 4, to be removed, the speed limit is now 50 mph, and on Track 3, to be removed, 30 mph. On Tracks 1 and 2, which are to be left in place, the speed limit has been and will continue to be 80 mph for passenger trains and 60 mph for freights. Traffic consists of 85 or more trains daily, of which half are passenger trains. Each of the four tracks was signaled for movement in one direction only, Tracks 1 and 3 westward, and Tracks 2 and 4 eastward. Passenger trains and many through freights normally were operated on Tracks 1 and 2.

Main-Track Crossovers

Capacity to operate 85 or more trains daily on two tracks only is to be secured by more intensive use of these two tracks. Each is being signaled for train move-

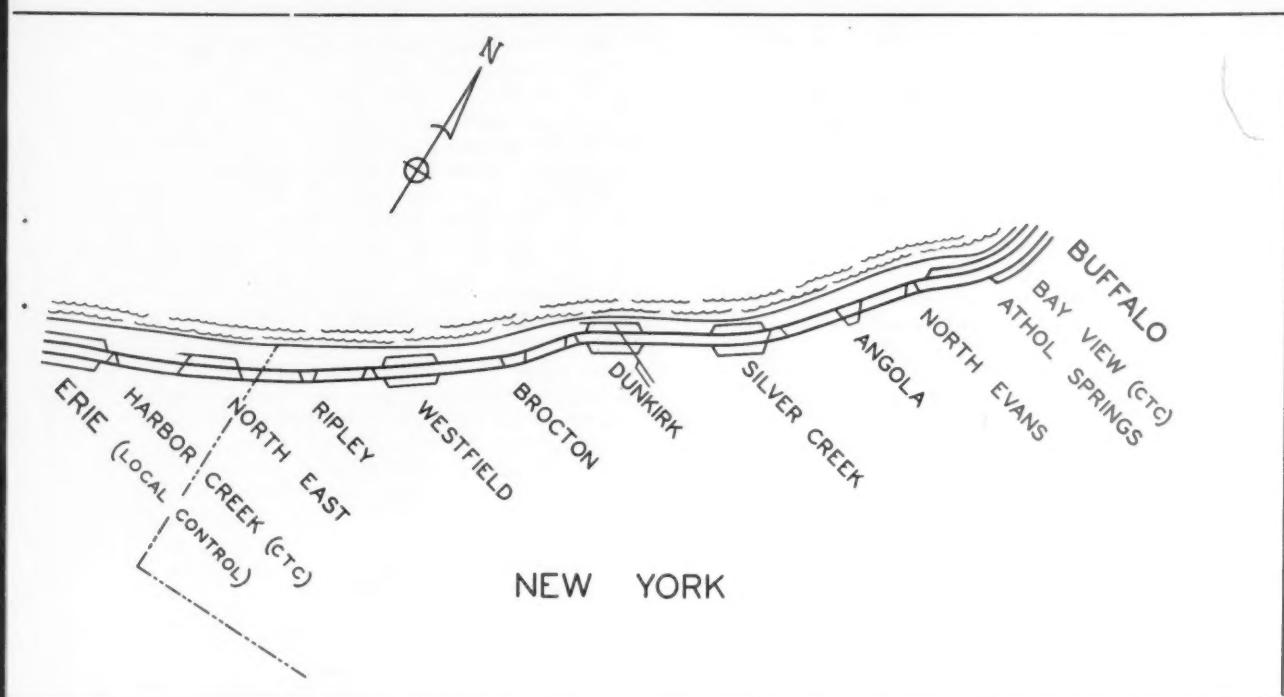
ments both ways. Power-operated crossovers, spaced an average of 7.3 miles apart, will be used to divert trains from one track to the other, so that idle sections of track can be used to run fast trains around slower ones.

To determine where the crossovers between the two main tracks should be located, train movements for typical days were "redispatched" on "time-distance" charts, according to what could be done with CTC on two main tracks. Then the proposed locations of crossovers were shifted according to local considerations. For example, a main track crossover and an end of a siding were spotted together to form one remote control CTC interlocking.

In the CTC territories, there will be 42 crossovers between Tracks 1 and 2. The maximum distance between crossovers is 11 miles and the minimum 4 miles. Model 5c, 110-volt d-c switch machines are to be used. High-voltage machines will provide the fast operation essential because of the high density of traffic. All power switches are to be equipped with dispatcher-controlled snow melters.

Sidings for Switching

Two-mile sections of Tracks 3 and 4 (the two outer tracks) are to be left in service as "work sidings" at towns where considerable local switching is required. House tracks and industrial spurs are connected to these sidings through hand-throw switches equipped with circuit controllers. The sidings have power switches and No. 20 turnouts, and may be used for passing trains.



On 163 miles between Cleveland and Buffalo, two main tracks are being taken up and CTC installed on the two remaining tracks for train movements each way on each track

Their capacity allows 150-car trains to pull into the siding at 30 mph, and still have enough track length to stop short of the leave-siding dwarf signal. The CTC territory is to include 22 of these "work sidings," 12 of which are to be sections of Track 3 left in place, and 10 sections of Track 4.

Controls in One Office

The entire centralized traffic control territory is to be controlled from two machines in the dispatcher's office in Erie. One machine will control switches and signals between Bay View, N. Y. and Girard Jct., Pa., (94 miles), with one break at Erie. The break is for 11 miles between Harbor Creek and Dock Jct., these two points being CTC controlled. The west end CTC machine controls from Girard Jct. to "BR" tower at Nottingham, Ohio, (63 miles) with a five-mile break through Ashtabula, Ohio. Previously existing locally controlled interlockings were retained in these "break" areas because of the large number of industrial and local switching moves.

Eleven interlockings which were either locally or remotely controlled will now be controlled from the CTC machines. Six were on the east end of the territory, at Angola, Dunkirk and Westfield, N. Y., and North East, Dock Jct., and Lake City, Pa. Five interlockings on the west end were at Girard Jct., Pa., West Crossover (Ashtabula), Madison, Painesville and Willoughby, Ohio.

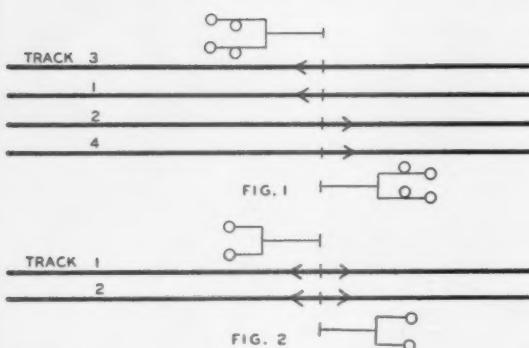
These CTC machines include several outstanding features, developed by the New York Central, to simplify

and expedite manipulation. On the diagram, the lever for each switch is mounted in the $\frac{1}{4}$ -in. white line which represents the track where the "turnout" joins the "straight track." For a crossover, the lever is at the center of the white line representing the crossover. An indication lamp in the face of each switch lever is white for "out-of-correspondence" and red for "locked." As further aid to the dispatcher to "see" the routes which he is lining up, the $\frac{1}{4}$ in. track lines include small triangular sections which are moved to repeat the operation of switches, so that the route being lined is indicated by a full width $\frac{1}{4}$ in. white line.

The signal levers, with their associated indication lamps, are placed adjacent to the symbol for the track the signal governs, there being two horizontal rows of signal levers—one above the track diagram and the other below. The levers are located on the diagram at places corresponding to the signals in the field.

If two or more following trains are to use the same route through a CTC interlocking, the dispatcher can set up "fleet" control by throwing the signal lever and then raising a toggle switch immediately above that lever. This removes "stick control" so that after the passage of one train, the signal will again clear for the next one, without further attention by the dispatcher. No manipulation, other than ordinary operation of a lever, is required to control a call-on aspect.

In many CTC projects, train occupancy of a section of several miles between crossovers or siding layouts is indicated by only one or perhaps two track-occupancy lamps on the dispatcher's diagram. In order that NYC



BEFORE CTC: Fig. 1 shows signaling for single-direction operation of trains on each of four main tracks. **AFTER CTC:** Fig. 2 shows signaling for either direction movements on each of two main tracks. Service road will be outside tracks.

dispatchers may know exactly of the location and progress of each train, the new machines have a track-occupancy lamp corresponding with each automatic block.

This is the first large installation employing Syncro-scan for the transmission of controls and indications. Controls are sent in 1½ seconds. Scanning of field stations gives the dispatcher a continuous check of indications with a maximum delay of 4 seconds after change. The system is duplex in operation, in that controls and indications may be transmitted simultaneously without interference.

Longer Blocks, Fewer Aspects

The previous single-direction automatic signaling on all four tracks included four-aspect signals with blocks about 5,200 ft long. The new automatic signaling for both directions on each of the two tracks is to use three

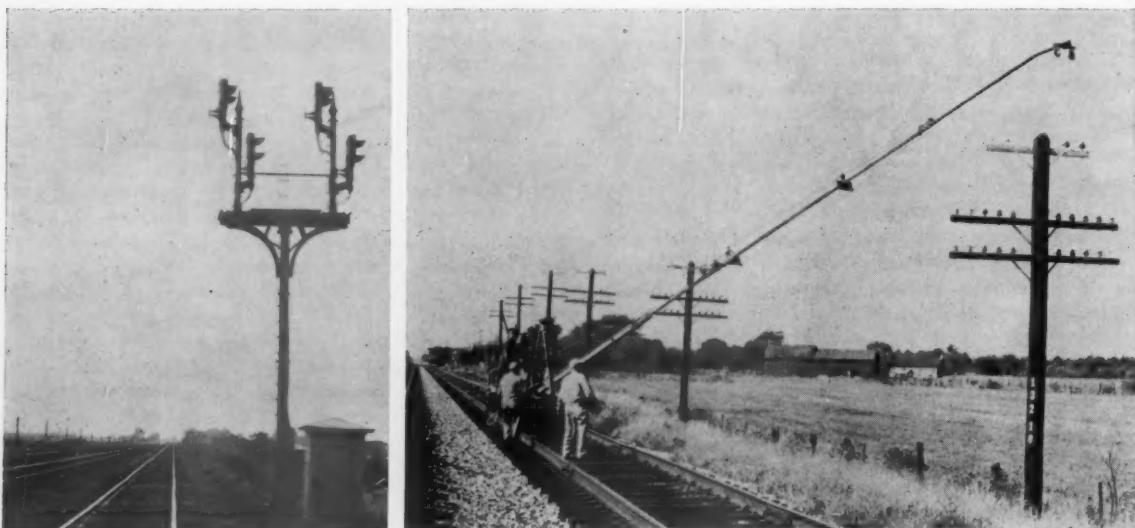
aspects with blocks about 10,000 to 12,000 ft long. In approach to stations where passenger trains stop, such as Dunkirk, Erie and Ashtabula, signal block length is adjusted and appropriate signal indications are provided on both main tracks so that trains can close up without unnecessary stops. The intermittent inductive train stop system, including wayside inductors at all main track automatic and interlocking signals, is being revised according to the new locations and controls of wayside signals.

Flashing Aspects for Crossovers

To direct enginemen to bring their trains up to and through the crossovers at the speeds for which they are designed, special aspects are included in this new CTC project. If a route includes a diverging move on a No. 20 crossover reversed (good for 45 mph), the home signal aspect is red over flashing green over red, which indicates proceed, limited speed within interlocking limits. If only one block ahead is unoccupied, the home signal aspect is red over flashing yellow over red, indicating proceed at limited speed, prepared to stop at next signal. Limited speed is 45 mph. The approach signal will display yellow over flashing green to indicate approach the next signal at limited speed.

If the turnout is a No. 16, then the home signal will display medium speed aspects for crossover moves; i.e., red-green-red indicating proceed, medium speed within interlocking limits; or red-yellow-red, to indicate proceed at medium speed preparing to stop at next signal. The approach signal will display yellow-green to indicate approach the home signal at medium speed. Medium speed is 30 mph.

The sidings are track circuited, not only to control track occupancy lamps on the dispatcher's diagram, but also to control signals. The turnouts to sidings are No. 20, signaled for entry at 30 mph. The aspect for a train to enter an unoccupied siding is red-yellow-red, proceed



OLD AUTOMATIC SIGNAL (left) taken out of service with light units turned to the field. The track next to the signal will be removed, with a service road in its place. **Wire stringing machine** (right) allows 3 miles of code lines wire to be strung per hour by one wire gang.

at medium speed preparing, to stop at next signal. The approach signal will display yellow-green to indicate approach next signal at medium speed. If the siding is occupied, the dispatcher can still line a route into it, in which case the home signal will display red-red-yellow to indicate proceed at restricted speed (15 mph). The approach signal will display yellow-red to indicate proceed prepared to stop at next signal, trains exceeding medium speed must reduce to that speed. The leave-siding dwarf may display four aspects; flashing green, proceed at limited speed within interlocking limits; flashing yellow, proceed at limited speed prepared to stop at next signal; yellow, proceed at restricted speed; and red for stop.

Code Line Strung by Machine

Several phases of the early construction work are being carried on simultaneously—for example, staking out on the ground of the remote interlocking (crossover locations); taking automatic block signals out of service; and rearranging the track circuits for the highway crossing protection for high-speed train movements in either direction on both main tracks. One of the earlier portions of the construction work was the lengthening of blocks, by the simple process of taking every other automatic signal out of service, a total of 198 such signals being removed.

The CTC code line wires are being strung by a special machine which is basically a derrick with a 53-ft boom

mounted on a track car. The boom is telescopic so it can be lengthened to 61 ft, or it can be shortened to 15 ft. The wire feeds from the reels, and pays out through sheaves at the end of the boom, being laid up on the top crossarm.

A track motor car pulls the derrick car and the two track cars with the line wire reels (5,000 ft of wire per reel). Using this mechanized operation, the line gang can string three miles of code line per hour. A patent has been applied for on this machine, which was designed by L. A. Jackson, field signal engineer, and O. H. Steffens, signal construction supervisor, and built in the Ashtabula shop of the NYC under the direction of H. A. Smolka, departmental foreman.

Fifteen Months to Install CTC

The construction is now well under way, and the project is scheduled for completion by September 2, 1956. Twenty-three cut-ins, each including 8 to 10 miles, will be made beginning at Buffalo and Cleveland, working toward Erie. After each cut-in is made, sections of Tracks 3 and 4 between sidings will be removed. The roadbed of these former tracks will be graded as a service road for off-track equipment.

The engineering, circuit design and installation work is being done by railroad forces under the jurisdiction of H. A. Scott, chief signal engineer. The major items of signaling equipment are being furnished by the General Railway Signal Company.

Why Be a Foreman?

The job of a supervisor is a primary managerial function—Here's how a LMOA committee documents basic steps in picking and training a foreman

Nearly all problems when sifted down are human problems. Production problems, material distribution problems, quality control problems, administrative problems, financial problems—they nearly all end up as human problems. Nothing happens in business except through people. At least 85% of the ultimate value of a product is the result of the work of people. The human problems existing in railroading today are so important because executives, supervisors and employees are the most valuable assets of a railroad.

Dealing with people is an art. Since it is the most useful art in business and the most valuable art in living its worth cannot be overemphasized. Like any art it can be accomplished by doing two things:

• Understand the underlying principles on which it is based;

• Practice incessantly the application of these principles in all dealings and relations with people.

Since a foreman's success is in direct proportion to his ability to handle people, management must in turn deal with the foreman in the proper manner. Since he does represent the management to the employees he must have instilled in him the attitude that he is a part of management.

The most important consideration attached to the foreman's job is appropriate compensation and supplemental privileges whereby the feeling that he is just barely above the rank of workmen is eliminated. This consideration largely influences his attitude and only if it meets with his approval will he display the spirit so necessary in dealing with employees under his supervision.

The foreman's job must carry prestige. It must carry working hours which make it desirable. In fact, it must be made into a really attractive proposition. With more employees seeking such jobs the chances of securing the potentially proper caliber of candidate for foremen's positions is greatly improved.

When the status of the foreman's job is thus estab-

This article is adapted from a report of the Personnel Training Committee of the Locomotive Maintenance Officers' Association presented at the recent annual meeting in Chicago.

lished, the man occupying the job must be treated so as to raise his ego to a level of importance. To be a man among men is possibly man's deepest wish. To be so regarded by his fellowmen in everyone's inmost desire and inherent right.

The desire to be important is the deepest urge in human nature, said John Dewey, one of America's foremost contemporary philosophers. Whiting Williams, who studied and worked with hundreds of labor people to find out what was on their minds, concluded that the wish for worth is strongest.

Individual Consideration

Since each person is the center of his world of experience and action, and since above all he wants to be so regarded, the obvious correlation is to deal with each person so as not only to cause him to feel that he is the center of his particular orbit of operation but to feel that management is fully aware of it and that he is a unique and important person among persons.

Skill in dealing with people lies not so much in getting a man to think well of you as in getting him to think well of himself. He must be made constantly aware of the fact that management is fully conversant with his problems and with his responsibilities. Nothing goes so far towards instilling enthusiasm in the foreman as his feeling of importance and his conviction within himself that he is regarded as part of the management of the railroad.

There must be established with the supervisor a proper attitude. Then instructions with respect to maintenance and policies regarding relations with the employees can be successfully administered. If the attractions of the foreman's job are successfully established and a man of the proper attitude is in the job, the next problem is one of keeping him acquainted and familiar with the practices, methods, and policies which management desires him to administer.

One of the biggest single problems today is to get instructions to the foreman and to know that he thoroughly understands them and is administering them properly. For example, one railroad issues circular letters to set forth standard procedures and practices as to making changes in the method of performing a particular phase of any given operation. In other words, a circular letter will cover a modification to be made on a certain part of a particular class of diesel locomotives. These letters are sent to the master mechanic who in turn sends them down through channels so they eventually reach the foreman. The master mechanic is supposed to see that each such foreman receives such instructions, understands them and puts them into effect.

This system is far from being perfect. In many cases the instructions are received by the foreman but not understood. Rather than ask for clarification, the instructions are filed in a desk drawer and forgotten. Sub-

sequently an inspection of the operation at this particular point develops that these instructions are not being carried out or lived up to. Investigation discloses that the instructions not being understood were set aside with no attempt to obtain clarification. Thus this particular system is not fool-proof and is largely dependent on the human element for success.

It is obvious that if foremen directing the activities of employees engaged in maintenance work are not conversant with standard practices and procedures desired, an ineffective and uneconomical maintenance program is the result. The handling of instructions to foremen should be carefully investigated to determine whether or not the best system is in effect.

The supervisor actually controls the purse strings of a railroad since by his decisions as to renewing a part, scrapping it or repairing it, for example, money can be spent unnecessarily. The foreman should be exposed to instruction programs whereby he becomes conversant with the cost of materials. He should be impressed with the value of new and second hand parts so that each decision is tempered with knowledge so use of new parts is not promiscuous.

Rotating System

If a foreman remains on a certain job for some time and is not in contact with other phases of operation of the railroad he more or less falls into a mental rut. Several ways have been employed to overcome this problem. One is to rotate the foreman from one job to another periodically. Thus the individual is confronted with new employees, new problems, and different operations, all of which cause mental stimulation, resulting in a more aggressive, quick-thinking supervisor.

Some railroads still have the problem of changing from steam to diesel, complicated by the reduction in forces caused by economic conditions. This situation usually results in older men, familiar with steam locomotives, being retained in the service and the younger men furloughed. Recognizing this situation the foreman must be in position to instruct and by constant patient procedure to assure himself that the men under his jurisdiction fully understand just what is wanted on each particular job or operation. He must have constantly at his fingertips information about each type of locomotive and the locomotives of each manufacturer. He must be in position immediately to identify material and parts needed and know exactly where to locate them in the proper catalogs and see that little time is lost in securing them for the storeroom.

The future of the foreman problem involves the people who will be foremen. Sad as it may be, a number of railroads wait until a vacancy occurs and then frantically pick someone to fill the vacancy. In many cases regrettable mistakes are made. The railroads have suffered by promoting a good mechanic they thought would

Nothing goes so far towards instilling enthusiasm in the foreman as his feeling of importance and his conviction within himself that he is regarded as part of the management of the railroad.

One railroad in its search for potential supervisors has adopted the program of working prospective foremen on foremen's vacation vacancies where possible.

make a good supervisor and after unsuccessfully trying to make a supervisor out of him being confronted with the problem of what to do with him. Should they demote him or take him off the supervisory job entirely?

Supervisory Morale

Either action would no doubt raise the questions in top management's mind as to why a man on a supervisory job this length of time must be removed; who was responsible for this selection; and why did it take so long to decide he is incapable? If such a problem is not satisfactorily disposed of it can create a morale problem affecting the spirit of the supervisory organization. Therefore it is highly desirable to select initially an employee who has the characteristics that will allow him to develop into a competent supervisor. This man after his selection should be carefully watched and in the event it becomes evident that he will not develop regardless of the amount of training to which he is exposed he should be relieved so as not to put into the organization non-promotional material.

In search for potential supervisors consideration should be given to the following nine qualities which it is desirable for the supervisor to possess:

- Fairness in dealing with others.
- Human understanding.
- Initiative and desire to work.
- Perseverance and follow through.
- Thoroughness and reliability.
- Cheerfulness and hopefulness.
- Ability to think.
- Knowledge of job and problems faced.
- Self control.

This list can be somewhat abbreviated in that the following four cardinal qualities must be evident abundantly for a supervisor to succeed:

- Ability to think.
- Inner drive and interest in work.
- Ability to assume responsibility.
- Ability to deal with people.

One railroad in its search for potential supervisors has adopted the program of working prospective foremen on foremen's vacation vacancies where possible. In other words the prospective foreman has a chance of working a number of different supervisory positions which allows his superiors to get a working evaluation of his abilities and thus more or less guards against the possibility of appointing an undevelopable supervisor.

When a potential supervisor is being considered for a foreman's job he should be considered as an individual. His individual talents, individual family situation, individual fears, strength and aspirations, all should be fully evaluated. His attitude toward responsibility should be thoroughly explored. Also his mechanical comprehension, personal mindedness, technical mindedness, production mindedness, reaction to pressures and

other qualities which will enable a man to be fit, and stay and grow as a foreman.

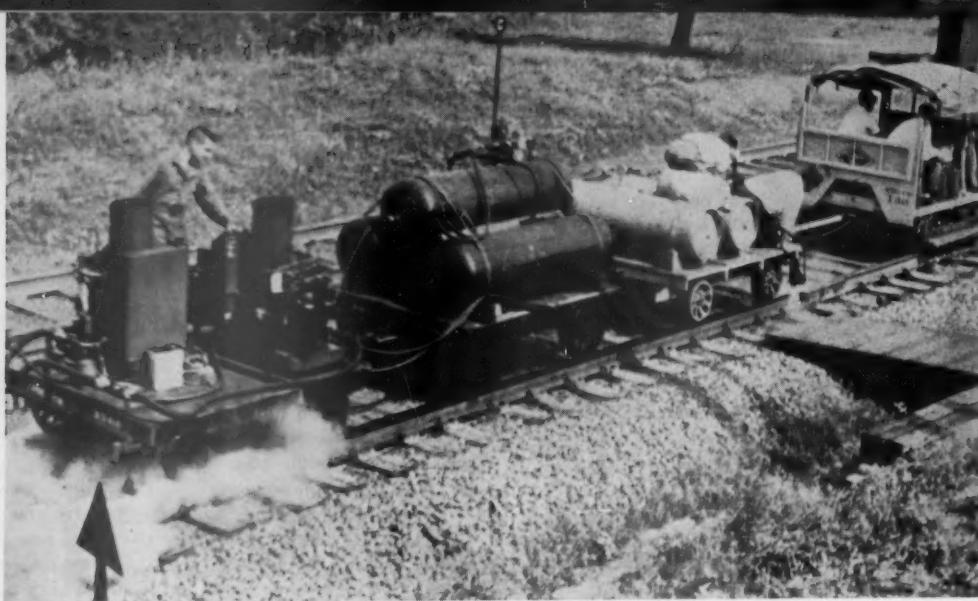
Several railroads start immediately to work on their apprentices with the idea not only of instructing them on mechanical comprehension, but of enlightening them on the functions of top management, its problems and its responsibilities. In this way they attempt to sow in these young men the seed of desire to aspire to managerial positions. If strong competition for supervisory positions can be initiated in groups of young men it will certainly create a better working situation—plus having a better supervisory potential to select foremen from.

Some men are given various types of aptitude tests to determine what potentialities they possess with respect to a prospective supervisory position. One railroad, along with the aptitude test, has asked for applications of men well in advance. These men are screened, using various tests, and are more or less graded for possible selection for promotion to supervisory capacity.

It is generally agreed that the supervisor is not only the key man in an organization but he is also the best investment the company has because management receives a greater return on the investment in this foreman than from any other. It cannot be overemphasized that since this man's most important function is representing the management to the worker his selection should be given careful and considered thought. It should be regarded as one of the most important tasks of management.

HANDICAPPED...!





Equipment used in rail washing tests.

26% Adhesion without Sand

ASME meeting briefed on results of new methods to overcome slippery rail tried out in recent road tests—Reports indicate considerable cost saving

Slippery rails—usually made slippery by a combination of a little oil or grease and light moisture—can be made to have the adhesion of a dry rail by washing. An article on this subject appeared in the October 11, 1954, *Railway Age*. Road tests made since that time have resulted in the development of means for washing rail and also the finding of chemicals which, when applied to locomotive drivers, or the rail, will permit a locomotive to operate at adhesions up to 26 per cent without sand.

A paper presented at the annual meeting of the American Society of Mechanical Engineers in Chicago, November 13-18, by Franklin G. Fisher, assistant mechanical engineer of the Reading, and Robert K. Allen of the General Electric Company, reports an investigation of the causes of low wheel-to-rail adhesion and possible methods of improving it.

The authors explained that, up to the present, limiting values of running adhesion have generally been accepted in railroad practice as follows: (a) 15 per cent of weight on drivers for greasy, moist rail; (b) 20 per cent for clean, dry rail; and (c) 25 per cent for clean, dry rail well sanded. Although a starting adhesion limit of 30 per cent was tentatively set for locomotives with electric drive, its attainment required specially favorable conditions which could not be counted upon in day-to-day operation.

Stalling of trains as a result of wheel slip is costly. The report mentions an example where continuous stalling on a short grade with a trailing load of 8,000 tons necessitated reducing the load to 7,000 tons. This required an extra train every seventh day to handle the traffic. At \$2.00 per mile, this represented an annual increase in cost of \$20,800 for a 200-mile trip.

The cost of extra trains, however, is only part of the expense chargeable to wheel slippage. It is also a major cause of damaged traction equipment, burnt rails, flat wheels, costly train delays, parted trains, and poor ballast

and rail condition resulting from excessive sanding. Moreover, to prevent stalling on limiting grades, it is often necessary either to provide extra crews for pusher service or to add one or more units to the locomotive—units that are needed for only a small fraction of the total run.

While the many and varied causes of locomotive wheel slip include factors related to locomotive design, maintenance and operation, others related to maintenance of way, and still others involving train dispatching and physical layout of the line, the authors consider the prime cause the contamination of the rail surface described in the October 11, 1954 *Railway Age*.

Although there may be many methods of removing the thin oil film that causes slipping, all are not equally effective or practical. In the laboratory, abrasion or polishing proved good, but it is impractical for railroad use. Early tests with flame cleaning showed it to be too slow and costly. Chemical attack on the oil film seemed most promising. Two approaches were tried; rail cleaning and rail conditioning.

The first method consisted of cleaning the rail with detergents. Material used had to penetrate the film at a rate that would permit the residue to be washed off the rail in a few seconds. Many chemicals were tested, both in the laboratory and in actual service. Cleaners of the solvent type were found to be best. High alkali or acid type cleaners, because of incomplete penetration of deposits, tend to leave a residue that makes the rail more slippery.

To successfully clean rails, the proper solution and correct rate of detergent application had to be determined; a source of adequate water and steam supply provided; equipment for spraying assembled; and the question of whether to apply the solution from the locomotive, the caboose, or a separate unit, decided. Lack of steam supply on diesel-electric freight locomo-

tives, as well as other considerations, pointed to the choice of a separate unit, either self-propelled or mounted in a specially designed railroad car.

Successful tests were conducted in 1954. The method used, however, was limited to clear weather use since the cleaner emulsified on contact with wet rail and gave negative results. Moreover, costs proved prohibitive for practical operation. This left two alternatives: (1) concentrate on the mechanical and electrical causes of wheel slip, mentioned above, or (2) seek some material (other than sand) which, when applied to locomotive wheels or rails, would almost instantly neutralize the oil film. Publicizing the work already done resulted in an offer by a chemical company of some materials of its manufacture which were said to increase rail adhesion greatly. Service tests proved these to be highly successful in rail conditioning. Variations of the conditioners have been evaluated on the dynamometer test stand. The best have been set aside for further testing in actual service.

Conducting Field Tests

Road tests were made on two grades. The shorter is approximately 13,000 ft long. The ruling portion of 1.0 per cent is approximately 4,600 ft long on a 2-deg curve. The tonnage rating of this grade is 2,500 adjusted tons per diesel-electric locomotive unit. These units are 1,500- or 1,600-hp and have a continuous tractive force rating of approximately 52,500 lb. Depending upon traffic, the operation varies between 2 units with 5,000 adjusted tons, 3 units with 7,500 adjusted tons, and 4 units with 10,000 adjusted tons, with 2 lead units and a 2-unit pusher up the grade, or 4 units in the lead for the entire run.

Two 1,600-hp road-switcher units with a rating of 5,000 adjusted tons were used as test units. They were generally assigned to train RB-2, which is usually dispatched from the yard at the foot of the grade. The train has no momentum, therefore, and units are soon at full load on the grade.

This railroad operates all its freight trains on an adjusted tonnage basis. That is, the actual tonnage of the train is so adjusted for rolling resistance as to require the same drawbar pull per locomotive unit regardless of the train consist.

The longer grade selected for tests is 35 miles long, with one mile of level tangent track near the middle. The average grade is 0.63 per cent. There are over 150 major curves, the sharpest being 12 deg 30 min. The tonnage rating on this grade is 2,400 adjusted tons per locomotive unit. The usual train consists of three 1,500-hp to 1,600-hp diesel-electric units with a trailing load of 7,200 adjusted tons.

Prior to each test run the wheel diameters of each locomotive unit were measured and the light weight stenciled on each car in the train was recorded, together with the load weight shown on the waybill. When no load weight was shown, it was estimated as accurately as possible.

Test equipment installed on the locomotive units consisted of one single and one dual Esterline-Angus recording meters, and a transition indicator. The single instrument, an ammeter, was mounted in the cab of the leading locomotive unit and connected to record the current in No. 1 traction motor. The dual instrument

was mounted in the cab of the trailing unit. An indexing needle on each tape of this meter is fitted with a pushbutton and used to record mile posts, stations or any other landmarks needed for identification purposes. The second indexing needle on the ammeter was connected in the wheel slip relay circuit to record wheel slips. The second needle on the voltmeter was connected across the sander circuit to record sanding operations. In addition, a transition indicator light was installed in the cab of the trailing unit. Observers in this cab kept a minute-by-minute log of motor current, speed, transition and other pertinent data.

What the Tests Showed

The adhesion graphs shown on the charts were made from the recording ammeter tapes of the runs indicated. They were selected to show operating conditions on normal rail as compared to washed rail and conditioned rail.

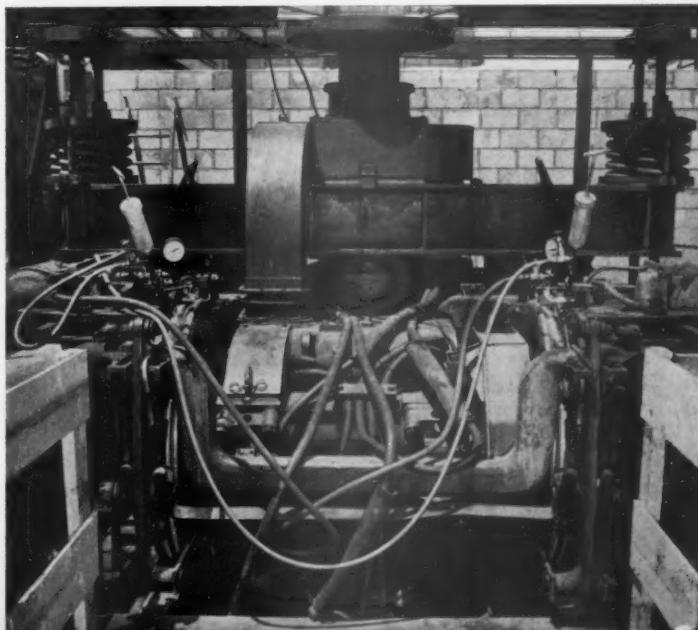
Chart No. 1 was chosen as typical of normal operation with untreated rail. Regular operating procedure was followed and no special instructions were given to the engineman.

The train was made up in the yard and dispatched at a point approximately 1,500 ft from the foot of the grade. Intermittent sanding was used over the entire grade. In spite of this sanding, constant slipping occurred. By the time the locomotive had reached the center of the 2-deg curve sustained slipping required reducing the throttle twice for short intervals, as indicated by the chart.

The first impression gained from this evidence might be that tonnage ratings should be reduced. Operating experience on this grade does not bear this out. Trains are dispatched with the same adjusted tonnage and with normal rail and weather conditions satisfactory operation is obtained. The railroad operates similar locomotive units of different makes in this service. With the consent of the manufacturers the rating for all multiple-unit operation is 52,500 lb continuous tractive effort at approximately 9 mph. For the lightest units, weighing 246,000 lb, this equals 21.3 per cent adhesion.

Prior to the test recorded in **Chart No. 2**, the rail was washed for a distance of approximately 3½ miles. The

Dynamometer test stand with equipment for evaluating rail conditioning materials.



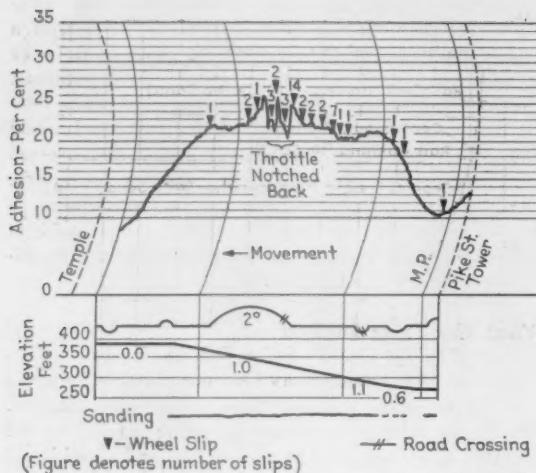


CHART NO. 1. Adhesion chart of test on Temple Grade with untreated rail with two locomotive units—71 cars (58 loads, 13 empties) totaling 5,123 adjusted tons. Weather clear.

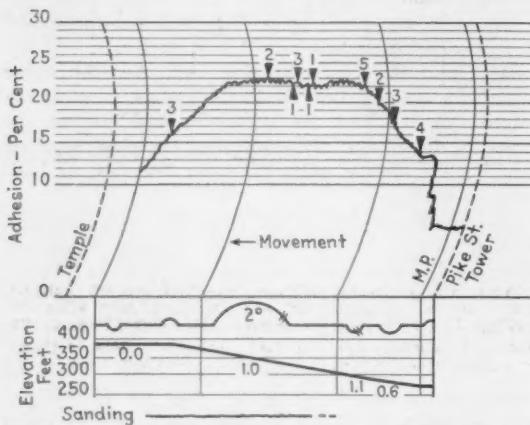


CHART NO. 2. Adhesion chart of test on Temple Grade with washed rail made with 4 diesel units, and 122 cars (117 loads, 5 empties) totaling 10,379 adjusted tons. Tonnage rating for grade, 10,000 adjusted tons. Weather clear.

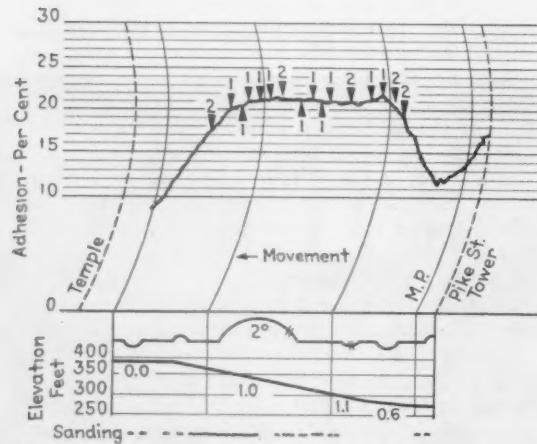


CHART NO. 3. Adhesion chart of test on Temple Hill with untreated rail. Two diesel units and 77 cars (60 loads, 17 empties), totaling 4,992 adjusted tons. Tonnage rating for grade 5,000 adjusted tons. Weather clear.

engineman was instructed to use sand only if necessary to stop constant slipping.

Although this train did not start from rest at the foot of the grade, its speed through the station and yard was so restricted that the momentum to assist on the grade was no different from that in the test recorded on Chart No. 1. The locomotive units used were approximately the same in speed-tractive effort rating as those in the test recorded in Chart No. 1, and therefore would have practically the same hauling capacity. Nevertheless, slipping in this case was considerably less. Only sparing use of sand was required, and there was no need to reduce the throttle. The only physical difference was that the rail had been washed, using the method proved most effective by a long series of preliminary tests.

Regular operating procedures were followed during the test recorded on **Chart No. 3**, and no special instructions were given to the engineman. The train was similar to that in the test recorded in Chart No. 1.

The test is used as a basis for comparison of performance on this grade with a series of rail conditioning tests. It also serves to point out that no apparent advantage is gained by using locomotive units of different manufacture if rail contamination is still present and all other conditions are equal.

As was the case with the test in Chart 1, adhesion at continuous tractive rating is difficult to maintain, and no appreciable difference can be attained with intermittent sanding over the entire grade. In each case constant slipping is prevalent through the curves and on the entire grade.

The test recorded on **Chart No. 4** was made using rail conditioner. The engineman was instructed to use no sand at all.

The train exceeded the rating for the grade by 758 adjusted tons, or 15.4 per cent. Also, it was 16 cars longer than the train used for Chart 3, and 22 cars longer than that for Chart 1. Nevertheless, it ascended the entire grade without a slip and without the use of sand. The maximum adhesion developed was 24 per cent on the lead unit. The motor current on both units was above 1,100 amp for 11 minutes (continuous rating for these motors is 1,085 amp).

The test recorded on **Chart No. 5** was made using rail conditioner. The engineman used no sand.

The train exceeded the rating for the grade by 1,160 adjusted tons, or 23.2 per cent. Except for a few slips at road crossings prior to the most difficult portion, the train ascended the grade with no slips and without the use of sand. The maximum adhesion developed was 26.7 per cent on the lead unit. The motor current on both units exceeded 1,200 amp for 13 minutes.

Authors' Conclusions

While locomotive wheel slip has been recognized as a major operating problem, both railroads and locomotive manufacturers initially tried to overcome it indirectly by electrical and mechanical means. When the gains resulting from this approach were weighed against the cost, the results were disappointing, said the authors of the ASME paper.

The discovery that thin, moisture-propagated oil films are the cause of poor adhesion opened the way for a direct attack on the problem. This first look in the form of rail washing, with the following results:

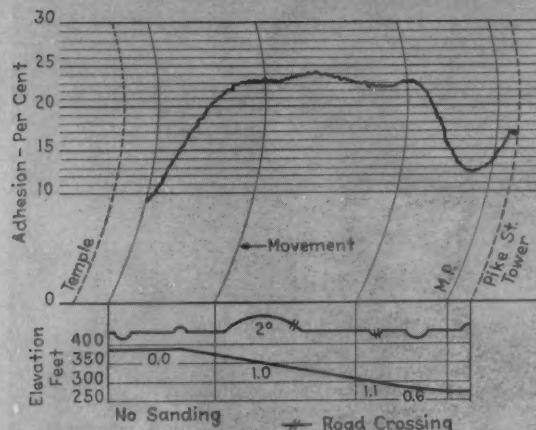
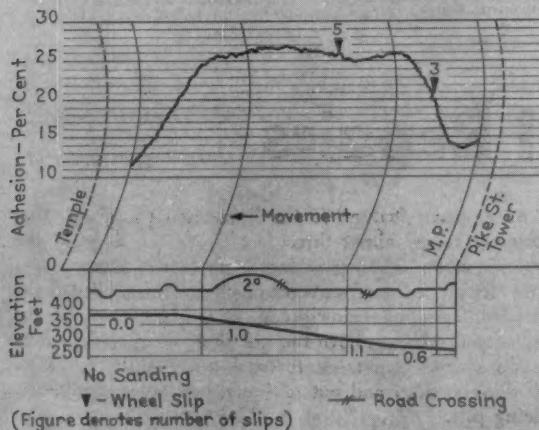


CHART NO. 4. Adhesion chart of test on Temple Hill with conditioned rail. Two diesel locomotive units and 93 cars (53 loads, 40 empties) totaling 5,758 adjusted tons. Tonnage rating for grade 5,000 adjusted tons. Weather clear.



1. Washed rail showed a significant improvement over unwashed rail.

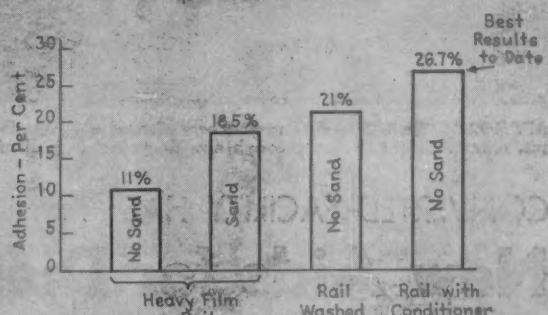
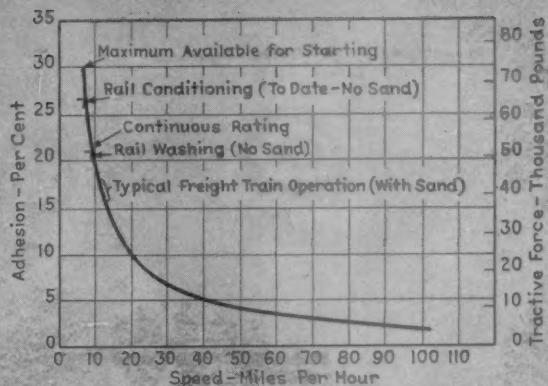
2. The method of washing required for practical use proved to be costly, tedious and complicated; requiring storage capacity for solution and water, and a means of producing hot water and steam.

3. Satisfactory results required such careful control of the working process as to practically necessitate its being made automatic.

4. Maximum adhesion resulting from careful rail washing was 21 per cent without sand (measured from traction motor torque at 9 mph train speed). Limited improvement on this value could be obtained with sand.

5. Rail washing did not remove the last vestige of oil film. Nevertheless, higher adhesions could be maintained on this thin film than on the same rail prior to washing. The use of rail washing and sand definitely improved adhesion in areas of heavy oil deposits.

In order to offset the limitations of rail washing, means were sought to improve adhesion by conditioning the rail in some manner other than by washing or sanding. Tests on a conditioning compound were begun in the spring of 1955. Up to the date of the ASME paper, the following results were attained:



Results of service tests with various conditions of rail surface.

CHART NO. 5. (left) Adhesion chart of test on Temple Grade with conditioned rail showing maximum adhesion developed. Two diesel locomotive units and 80 cars (70 loads, 10 empties) totaling 6,160 adjusted tons. Tonnage rating for grade 5,000 adjusted tons. Weather clear.

1. An improvement in adhesion with rail conditioner much greater than with rail washing.

2. "Exceptional" improvement with rail conditioner as compared to normal rail conditions.

3. Sustained adhesions obtained on conditioned rail as high as 26.7 per cent (measured from traction motor torque at 5.5 mph train speed). This value has been maintained without the use of sand.

4. The precise limit of adhesion possible with rail conditioning has not yet been established.

The adhesion curve indicates the steps of improvement and its significance in relation to the curve of the available tractive force of a typical diesel-electric locomotive.

In concluding their report, the authors acknowledged the assistance of representatives of the following companies: Manufacturers of equipment—Turbo Machine Company, Lansdale, Pa. Manufacturers of cleaners—Dearborn Chemical Company, Chicago; Eagle Soap & Chemical Co., Reading, Pa.; Magnus Chemical Company, Garwood, N. J.; Oakite Products Company, New York; and Pennsylvania Salt Manufacturing Company, Philadelphia. Manufacturers of conditioners—National Aluminate Corporation, Chicago.



APPROACH TRACKS, constructed over site of old roundhouse and turntable pit, enter light-repair bay through new doors cut in wall of old erection shop.

CONVERTED FACILITY HAS . . .

New Aids for Diesel Repairs

The Missouri Pacific selected North Little Rock, Ark., as the site of its main diesel repair facility. This centrally located point in a hub for lines which radiate in six directions. It has served for many years as a major shop for the repair and overhaul of steam locomotives and, as a result, has extensive shop facilities. Studies disclosed that these existing facilities could be adapted to heavy diesel repairs with comparatively little change and that the addition of modern roadside-servicing facilities would provide complete diesel service.

The MP announced complete dieselization this year. (*Railway Age*, April 18, page 7). It now has 873 diesel-electric units.

All Work Under Traffic

Because it was necessary to maintain facilities for the repair of motive power without interruption during the conversion of the shop facilities, all construction work was done "under traffic." This conversion required substantial plant changes. To make way for these changes it was necessary to remove two roundhouses, including one of 37 stalls, with the incidental removal of a 100-ft turntable and the filling of the turntable pit, rearrangement or retirement of a substantial amount of trackage, shortening of a transfer table and removal or relocation of a number of small buildings.

The principal elements of the diesel facility program included remodeling and extension of a portion of an old erection-shop building to provide seven light-repair tracks complete with platform and pit facilities; construction of a 100-ton drop pit under three of these tracks and an adjacent "release" track; construction of a new shop-lead track to the transfer table; installation of an oil-reclamation facility; and construction of a chemical laboratory for testing fuel, water and lubricating oil and various offices and storerooms.

An unusual feature of the light-repair tracks is that they are raised about three feet above the floor of the erection shop. The reasoning is that this arrangement provides all of the advantages of pit facilities without the disadvantages of below-grade pits. Elevation of the light-repair tracks above the old shop floor also permits ready access from track to track without the necessity of climbing into and out of individual below-grade servicing pits.

Each of the seven light-repair tracks has a capacity of three units at an elevated service platform. The tracks are of 132-lb welded rail. The track rails rest on a series of steel plates welded to the tops of steel H-beam sections which, acting as columns, support the running rails and are anchored to an 18-in. concrete slab poured flush with the shop floor. The rails are fastened to these plates with four rail clamps which are bolted through the plates.

The tracks enter the building through new door openings, cut in one of the side walls, which are fitted with overhead rolling doors that may be operated either electrically or manually. The stub ends of the tracks inside the building are protected with specially designed bumping posts constructed of welded wide-flange beam sections supported on an 18-in. reinforced-concrete slab.

Erection-Shop Extension

Since the original erection shop was only 135 ft wide it was necessary to widen it to accommodate three diesel units on the light-repair tracks. Accordingly a 65-ft by 176-ft extension was constructed on one side of the erection shop to house the seven repair tracks and the single release track or a total of eight tracks. An additional extension, 41 ft by 112 ft, has been constructed beyond the first to provide office facilities for the general foreman and foreman, a tool room, a filter-cleaning room,



LIGHT-REPAIR TRACKS, 3 ft above original shop floor, provide advantages of pit facilities without disadvantages.



ACCESS RAMPS to both levels are provided in each intertrack space from top-of-rail runway along entrance wall.

Some unusual features in system facility on the Missouri Pacific obtained in revamping existing shop—Outside servicing platforms also constructed

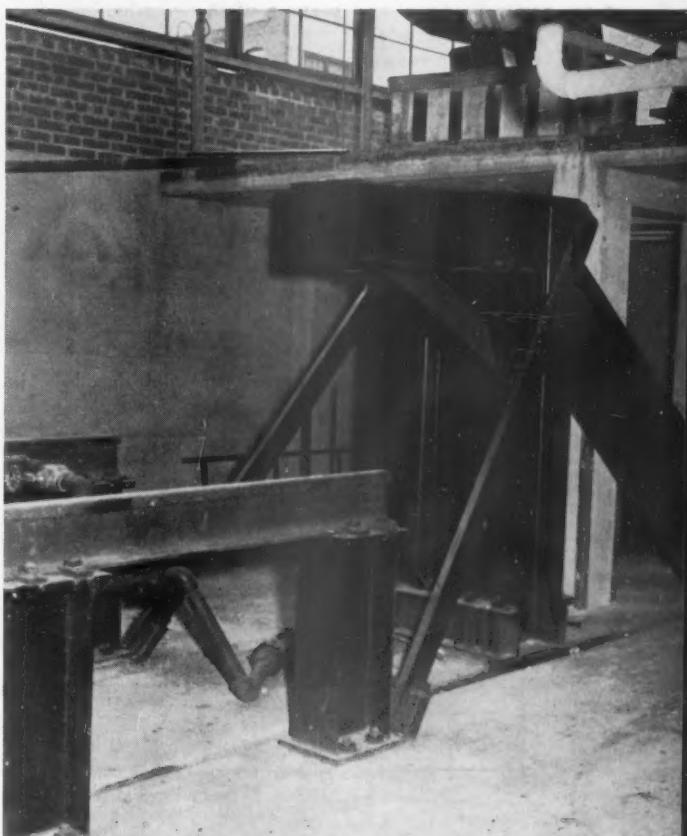
and a parts room on an upper level and storage space and a general toilet on a lower level. These extensions are steel and concrete. The walls are of brick and corrugated asbestos siding with large window areas which are closed with projecting steel sash.

A concrete runway 10 ft wide has been constructed across the eight elevated tracks along the entrance wall of the old erection shop. This runway is at the new top-of-rail level and is ramped down to the old shop-floor level at each end. Dual ramps parallel with the tracks lead from this ramp into each intertrack space. One of these ramps leads down to the floor level while the other leads up to the deck of a new elevated platform 7 ft 8 in. above this floor level.

High-Level Servicing Platforms

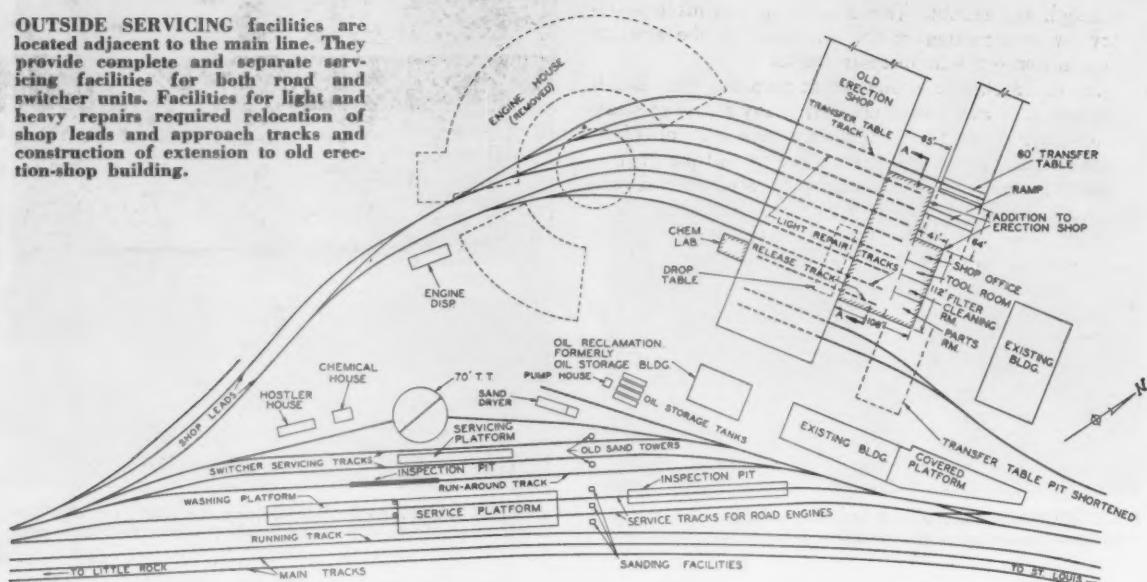
The high-level servicing platform in each intertrack space is of concrete and is supported by and cantilevered each way from a single line of concrete columns along the center line of the intertrack space. These platforms are interconnected beyond the stub ends of the servicing tracks by a platform 12 ft wide which extends the entire length of the building extension. The elevation of the floors of these platforms is the same as that of the upper level of the office extension.

A safety handrail runs along the edges of the platforms adjacent to the track area. This handrail is of unusual design. The horizontal bar consists of a series of short movable sections of pipe, each of which closes an individual space between the handrail posts. At each post there is a pair of parallel vertical rods each bent in the form of an inverted "J". The stem of the "J" is anchored in the platform floor adjacent to the post while a projection from the end of the loop is attached to the upper end of the post. Holes have been drilled in each end of the horizontal bars and they are threaded over



BUMPING POST of special design protects the end of each stub track in light-repair bay. Note track construction involving 132-lb welded track rails supported on H-beam columns.

OUTSIDE SERVICING facilities are located adjacent to the main line. They provide complete and separate servicing facilities for both road and switcher units. Facilities for light and heavy repairs required relocation of shop leads and approach tracks and construction of extension to old erection-shop building.



the adjacent rods at adjoining posts. Each end of the handrail bar normally rests in the cradle created at the joint between the upper end of the handrail post and a vertical rod. To open any section of the handrail it is only necessary to lift the horizontal bar over the looped tops of the rods and slide it down the stem to the floor level.

Pipe lines for supply air, water and lubricating oil as well as welding outlets are mounted along the under-side of each servicing platform. Pipe lines which supply steam for the testing of steam-generator units and for the collection of used oil drained from the diesels are attached to the webs of the track rails. Lighting for the area below the level of each servicing platform is by fluorescent fixtures attached to its under side.

Drop-Pit Facilities

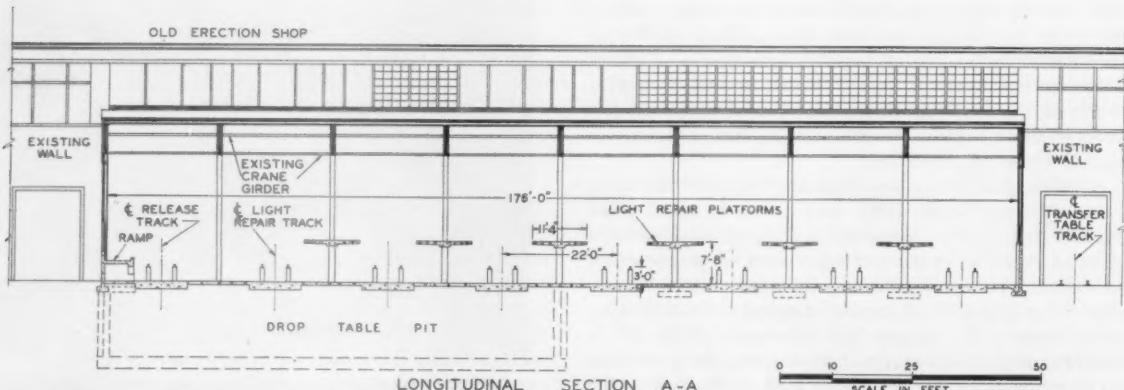
A 100-ton Whiting drop pit and table has been installed under three of the repair tracks and an adjacent release track. This unit handles complete trucks from

the diesel units to the release track. Adjacent to the release track is a wheel-turning area which incorporates equipment for turning wheels without removing the traction motors. This section does the diesel wheel work for the entire railroad.

The shop is ventilated by automatic exhaust fans which operate while diesel units are running and shut off when not required.

An oil reclamation plant has been installed in the old oil-storage building near the erection shop. Used lubricating oil is piped to this facility where it is filtered and reconditioned and then piped to storage for reuse as required. A chemical laboratory (24 by 35 ft), where control analyses are made of diesel fuel, water and lubricating oil, has been constructed as an addition to the erection shop.

A portion of the old erection shop beyond the light repair tracks is being used for making heavy repairs to diesels. Units are received on various stub tracks in this section from a 60-ft transfer table which was originally 680 ft long but has been shortened to 400 ft



CROSS-SECTION through extension of erection shop building shows typical arrangement of light-repair tracks and

elevated platforms. Elevation of tracks above grade of old erection-shop floor has eliminated necessity for pits.

in length and rebuilt. This shortening was made necessary by construction of the extension to the erection shop to house the light-repair tracks.

The old machine and blacksmith shop and other buildings which formerly were used for heavy repair of steam locomotives have been completely retooled for diesel engine work. Under the present set up, 80 per cent of diesel engine parts are reclaimed, reconditioned and reused in an assembly line set up for rebuilding diesel engines. Complete Magnaglo and Zyglo equipment has been provided for detection of flaws.

A separate room has been provided for air-brake work. A paint shop has been installed which will handle two units per week. An air-conditioned facility with filtered air has been provided for testing speed recorders and repair of diesel fuel injectors and pumps.

Facilities have been installed for the cleaning and routine maintenance of main generators and traction motors. However, no heavy electrical repairs are made.

To accommodate employees, a welfare facility (58 by 100 ft) has been constructed, affording space for 600 lockers together with complete washing and toilet facilities.

Outside Servicing Plant

About 100 diesel units are serviced at North Little Rock in each 24-hr period. A complete outside servicing plant has been provided to facilitate this work. It includes separate installations for servicing road and switcher units; both have inspection pits in addition to servicing platforms. In addition, washing facilities for diesel trucks and bodies have been constructed in connection with the servicing facilities for the road units. An existing 70-ft turntable has been retained adjacent to the servicing area for use when necessary. The entire area is illuminated with sodium-vapor lights.

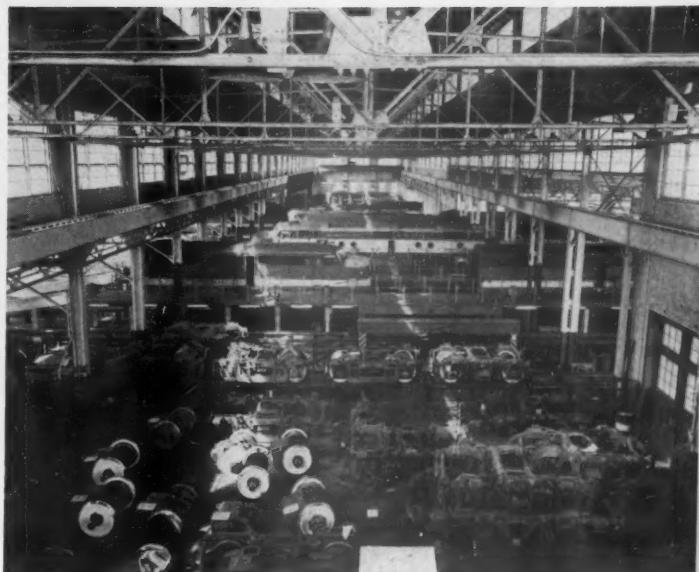
The inspection pit for road diesels is 210 ft long and was made 18 ft wide to provide a depressed working level on each side of the track. It will accommodate 4 units coupled as will the other facilities for servicing road engines. The track across this pit is of 132-lb welded rail, and the top of rail is 3 ft above the bottom of the pit.

The construction of this track is similar to that of the light-repair tracks in the diesel repair building. Electric lights are recessed into the pit walls along either side. Access to the pit is by concrete stairs at each end.

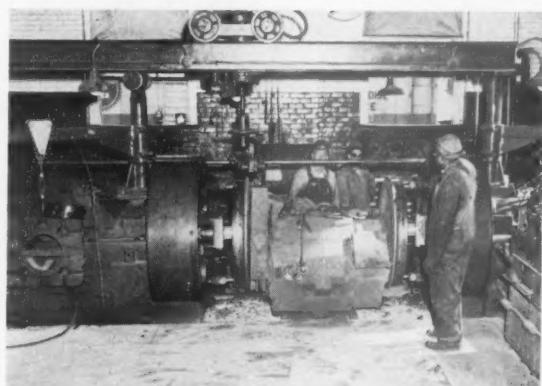
Lubricating Oil Is Preheated

Preheated lubricating oil is supplied from a series of outlet boxes along one side of the inspection pit. Provision has also been made at these boxes for collecting the used lubricating oil released when oil is changed in the diesel units, and for piping this oil to a central oil-reclamation plant for reconditioning and ultimate reuse.

A Ross & White sand-storage tower, with sanding outlets to each side of both servicing tracks, has been installed between these tracks adjacent to the inspection pit. Dried sand is supplied from a "Viloco" oil-fired rotary sand dryer with a capacity of 5 tons per hour. The sand-drying equipment is housed in a prefabricated steel building adjacent to a green-sand bin. The supply line from the dryer house also supplies sand to two pre-



LIGHT-REPAIR bay as seen from wheel-turning area. Wheels and traction motors are removed from truck frames by dismantling roller-bearing boxes and . . .

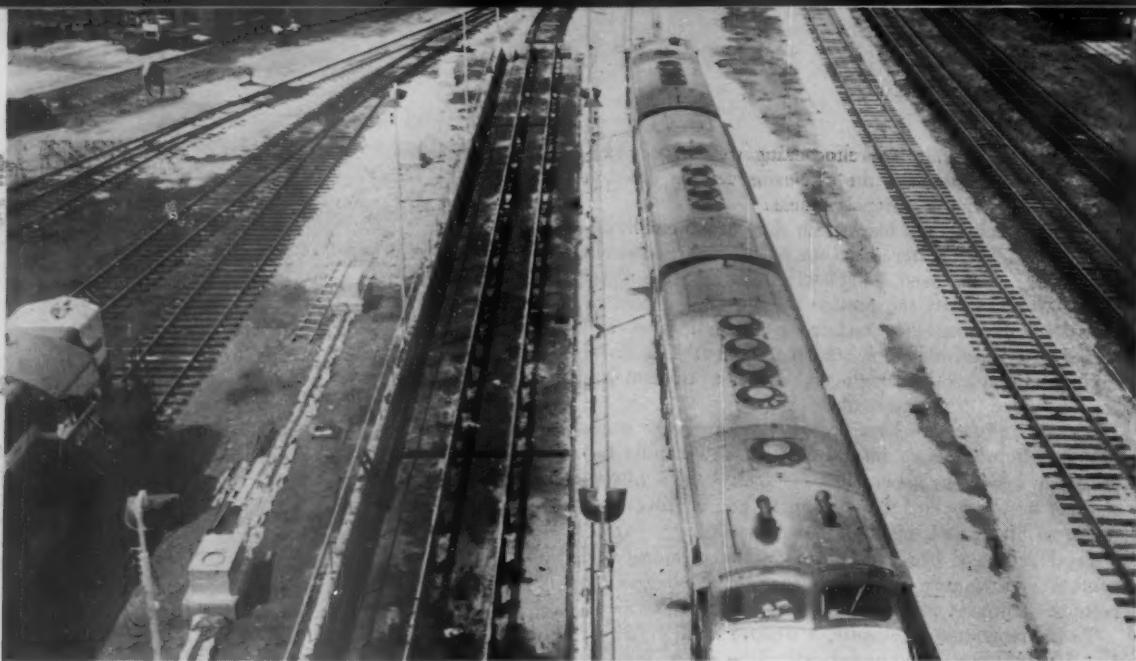


. . . WHEELS with traction motors attached are placed in a 52-in. Niles wheel lathe where worn wheel treads are profiled. All diesel wheel work for the Missouri Pacific is done at North Little Rock.

viously existing sand towers, one on each side of the switcher-servicing tracks. Four lubricating-oil storage tanks, an oil-unloading facility and pumphouse are located along the same track serving the sand-drying facilities.

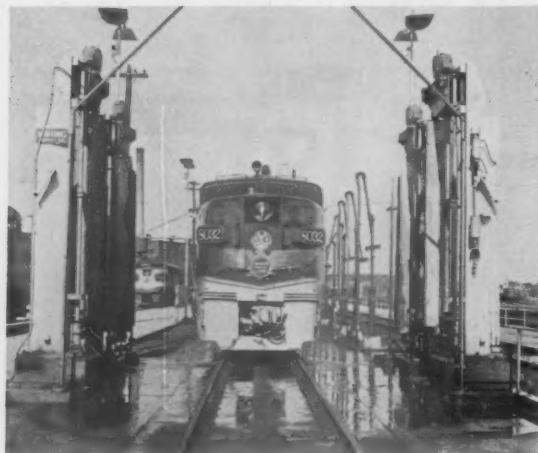
Fuel and Water Service

The facilities for supplying fuel and water to road units encompass both service tracks. The servicing area is paved with a concrete slab 210 ft long and 44 ft wide. There are 13 "Poage" service cranes on this platform along the center between tracks. Seven supply water and six are for fuel oil. They are full rotating so that they may be used to service units on either track, and are equipped with self-restoring counterbalanced arms on



SERVICING PIT, 210 ft long, has capacity for four units coupled. Extra width of pit provides adequate working

space at sides. At left of pit, boxes supply heated lubricating oil and means for collecting used oil to be reclaimed.



DIESEL UNITS move through a Whiting washer at one end of the outside servicing facilities before being watered and refueled at . . .



. . . **SERVICING PLATFORM** equipped with 13 Poage servicing cranes (6 for diesel fuel and 7 for water). Service cranes for diesel fuel are equipped with Brodie meters.

swinging ball joints and flexible delivery hoses. The fuel-oil cranes are equipped with Brodie meters.

A concrete platform, which is virtually a one-track extension of the servicing platform, has been provided for washing diesel units. This platform is 170 ft long and 24 ft wide, and is equipped with a Whiting car washer and the necessary spray equipment. The controls governing the washer-brush motors, flow of water, and body and truck solutions are housed in a small prefabricated metal building. Another prefabricated metal building houses the chemicals and other appurtenances to the washing operation.

Switcher Servicing Platform

The facilities for servicing switchers also comprise a two-track layout which incorporates a service platform 150 ft long and 5 ft wide. This platform is equipped with

an overhead distribution system for the fuel oil from which the fuel is delivered through long hoses. Water is supplied from cranes similar to those serving the road units. A runaround track between the two servicing areas is equipped with a track pit 115 ft long for the inspection of the switcher units.

All construction work in connection with the project has been done with company forces except those specialized installations which were placed by the equipment manufacturers.

Work has been under the general direction of W. H. Giles, assistant chief engineer system, construction. Design was under the direction of A. L. Becker, engineer of structures. R. H. Carpenter, district engineer, and D. L. Crowell, resident engineer, Little Rock, have had direct charge of the construction operations. Shop layout has been under the direction of O. L. Hope, mechanical superintendent, Little Rock.

Time
... rides on
your side with

Streamlite HAIRINSUL



LOW CONDUCTIVITY . . . Thoroughly washed and sterilized, all-hair heat barrier. Rated conductivity — .25 btu per square foot, per hour, per degree F., per inch thick.

LIGHT WEIGHT . . . Advanced processing methods reduce weight of STREAMLITE HAIRINSUL by 40%.

PERMANENT . . . Does not disintegrate when wet, resists absorption. Will not shake down, is fire-resistant and odorless.

EASY TO INSTALL . . . Blankets may be applied to car wall in one piece, from sill to plate and from one side door to the other. Self-supporting in wall sections between fasteners.

COMPLETE RANGE . . . STREAMLITE HAIRINSUL is available $\frac{1}{2}$ " to 4" thick, up to 127" wide. Stitched on 5" or 10" centers between two layers of reinforced asphalt laminated paper. Other weights and facings available.

HIGH SALVAGE VALUE . . . The all-hair content does not deteriorate with age; therefore has high salvage value. No other type of insulation offers a comparable saving.

... because time has yet to destroy or impair the high insulating efficiency of Streamlite HAIRINSUL

Even after twenty or more years of service, STREAMLITE HAIRINSUL has been removed from refrigerator cars and re-used in new cars without need for further processing or renovating.

STREAMLITE HAIRINSUL, the all-hair insulation that actually weighs 40% less and gives so much more in efficiency and economy is a one-time investment.

At left are still more reasons why leading car builders demand STREAMLITE HAIRINSUL for efficient insulations. Write for complete data.

MERCHANDISE MART, CHICAGO 54



SETS THE STANDARD BY WHICH ALL OTHER REFRIGERATOR CAR INSULATIONS ARE JUDGED

Why Merge Passenger-PR Work?

Principal purpose of new SP arrangement is to provide adequate public relations representation in every community and in principal off-line cities

By CLAUDE E. PETERSON

Vice-President
Passenger Traffic—Public Relations

Probably no public relations move this year has created so much comment within the industry as the Southern Pacific's merger, on September 1, of its passenger traffic and public relations departments (*Railway Age*, August 29, page 43).

Because of the continuing interest in this development, and to bring out the facts behind the move, *Railway Age* invited Claude E. Peterson, vice-president, passenger traffic—public relations of the SP, to write a special article explaining the road's undertaking.

Mr. Peterson's statements may have special meaning for public relations and passenger men. But the SP approach has application to railroad officers in all departments for, as Mr. Peterson points out, the "front man" for the company at any location may logically belong to an officer in any department.

Southern Pacific's recent establishment of a new Passenger Traffic-Public Relations Department, taking in the entire staffs of its former Passenger Traffic and Public Relations Departments, is aimed at making it possible to expand greatly the railroad's public relations activities.

Developing of good public relations has long been a primary consideration in the Southern Pacific organization. However, it has long been felt that our relatively small staff of 38 public relations specialists has been hard pressed to do a thoroughgoing job at a local level in the many hundreds of communities the railroad serves. The principal purpose of the organizational rearrangement has been to provide adequate public relations representation in every community we serve as well as in principal cities off-line throughout the country.

In effect, we now have approximately 1,000 representatives, formerly concerned principally with passenger traffic, reporting in a direct line relationship to our professional public relations staff on public relations matters. Former passenger traffic managers now have the new title of passenger traffic and public relations managers. Former district passenger agents are now titled district passenger and public relations representatives.

Actually our passenger traffic representatives have for many years had limited responsibilities in local public relations, particularly in keeping the public relations office informed of local developments affecting the railroad. Also, in line with their traffic responsibilities they were generally well acquainted with local key people. Thus the placing of direct public relations responsibility on these traffic people comes as a logical expansion of their duties.

The immediate effort of our professional public rela-

tions staff is to guide and train the thousand men now reporting to it in many of the established public relations techniques. We do not expect that all of these former passenger traffic people will quickly become all-around experts in public relations matters, or that many will be helpful as writers in the field of press, radio and television relations. It is expected, however, that they will be increasingly effective in supplying to their communities information about the company, its plans and reasons for its actions when these might otherwise be misunderstood.

In this connection local representatives will be encouraged to take leadership in local civic affairs and otherwise seek ways in which they, as Southern Pacific representatives, may better our community relations. It is also expected that, through their increased community relations activities, they will be in a position to keep the railroad management better informed about public opinion, business and political trends and any developing situations that might lead to controversy between the local public and the railroad. We feel, in fact, that our new Passenger Traffic—Public Relations organization already is helping to increase this information flow in both directions. Our local representatives are often able to spot potential troubles before they arise, and their local contacts are invaluable in getting the railroad story to the public.

In the past, our local passenger people have assisted the Public Relations Department in this information work, by forwarding significant newspaper clippings and reports on public opinion to the general office and by helping distribute publicity releases or accompanying PR personnel on local visits. With responsibility for such work now directly assigned, this assistance is being stepped up. Under the present organization, district people report directly to the PR staff men on these matters, a simpler arrangement which saves time and avoids possible misunderstandings or confusion.

When problems arise on strictly local matters, our people on the spot often can solve them locally, with the assistance of local officers of the operating or other departments. Where questions of major policy are involved, these local representatives now have direct access to the professional staff for help and guidance.

How the System Works

The following is one example of how the new setup can help our community relations.

In a suburban community, outside of San Francisco, there were some efforts made on the part of the community officials to get some of our crossings improved, our freighthouse moved and a change made in our parking arrangements, as part of a community plan. This situation finally developed into an adverse editorial on the part of the community newspaper. When this happened, our general passenger agent made an investi-

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gation and found that there did not seem to be any insurmountable difficulties that would prevent meeting some of the community's desires, at least. So, after talking to the other departments, on his own initiative he arranged a meeting of our Operating and Passenger Traffic—Public Relations Departments with several of the city officials.

One of the elements in the situation was the fact that our own people had been somewhat dilatory in coming to any conclusion in the matter. The result of the meeting was that our company was able to satisfy a large portion of the community's request, and some good will was created. In fact, our company's attitude, as developed in the meeting, so impressed the community officials that they modified their position considerably.

Following the meeting, the newspaper published a very favorable editorial and spoke of the "New Attitude of Southern Pacific." Our public relations in this community are now stronger than they ever were before.

Friendly Attitude

Obviously this is a case where PT-PR Department poked its nose into Operating Department business, but it also was Southern Pacific business, and our friendly interdepartmental attitude was not resented by the Operating Department, but as a matter of fact was appreciated.

From time to time our PT-PR men may see potential sources of annoyance as far as the public is concerned, and our purpose will be to call these items to the attention of responsible company officers in an effort to have the conditions improved, but these efforts will be on an informal and friendly basis and not for the record. Some of the common sources of friction are such conditions as rough crossings, overlong blocking of crossings, and weeds and debris along the right of way. It is better to have these matters brought up by company people than by outsiders, and if company practice or actions do stir up trouble our PT-PR men are on the ground to help placate the complainants, whether they be organizations or newspapers, and to advise them when remedial steps have been taken.

Our PT-PR men are being called in for meetings between departments, or when interdepartmental meetings are arranged where public angles are involved—that is, where the public will eventually be affected. Thus they are becoming better posted and can be of better help when help is needed. They are also attending division staff meetings. The more they know what is going on and what the company's problems are, in all departments, the better are they able to function intelligently and capably.

While PT-PR men are endeavoring to make public relations their special calling, they also realize that public relations is everybody's business on the railroad. While our PT-PR men have a special responsibility for public relations, it is not their purpose in most instances to occupy the limelight or to be the "front men" for the company, where such a place more logically falls to the division superintendent or some other officer.

Many of our operating men are outstanding public relations men, who are active in their communities or who hold community offices. They do a lot of good for the Southern Pacific. In these cases the PT-PR men will

do their best to be helpful to the operating men in question, keeping in the background themselves.

We in Passenger Traffic-Public Relations will endeavor to familiarize ourselves with the general problems of the railroad, both as to legislative and other matters, and will try to contribute our bit toward the welfare of all roads in a public relations way. In our contact with legislators, both in our own home communities as well as on trains, we will try to do our best to put the railroad industry in the best light possible and cultivate the interest of these people.

On most railroads, as on SP before September 1, public relations has been a staff operation, under the Executive Department. We see no problem, however, in handling this staff function in a department which also has line responsibility for passenger traffic matters.

The technical public relations staff of our new Passenger Traffic-Public Relations department is guided by F. Q. Tredway, assistant to vice-president, and J. G. Shea, general public relations manager. The public relations work of the new department has the full backing of our president, who has a keen interest in public relations, so we have strong executive support.

One of the characteristics of the Southern Pacific organization as a whole has long been the way in which the various departments work together, regardless of formal organizational line. Also, the former Passenger Traffic Department has for many years performed a staff service in connection with the company's advertising activities, handling important institutional campaigns and advertising relating exclusively to freight, in addition to passenger sales advertising.

Setup Carefully Developed

Our passenger traffic setup has been developed carefully over the years. A top flight organization has been built up, and we have energetic and promising personnel on all levels, all of whom have welcomed an expansion of the scope and nature of their work in the public relations field. While the importance of sound and penetrating public relations activity is continuing to grow, it is no dark secret that the passenger business of railroads is contracting. Southern Pacific, like other lines, is concentrating on fewer and better passenger trains. We are cutting off losing trains where we can, while improving those trains which we feel are needed and supported by the traveling public. These passenger services are important to the railroad, both from the standpoint of their economic contribution and from their value as a front window and showpiece to the public. Certainly we have no lack of enthusiasm for the passenger business, and our efforts to bring in passenger business are being continued at a high level.

But it would be an ostrich-like, and unfair, attitude to try to convince our promising young people that the passenger business by itself will grow and offer all of them unlimited opportunity.

Now we do have something to talk about to our passenger people, and something to offer them. They have seen their positions taken on a new challenging responsibility and new importance in a field which will continue to be of top concern. We have had a live-wire organization in the past; for the future, we have simply added new vitality.



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The 8:11 pulls out on the dot and your watch better be right.

Keeping trains operating on schedule is a very important part of good railroading. And to maintain precise schedules, it's essential that diesels be kept in smooth-running condition . . . that coaches and locomotives be cleaned regularly . . . and that rails, bridges, turnouts, crossings and other equipment be well cared for. Running a railroad is the job of many men—and Dearborn helps all along the way.

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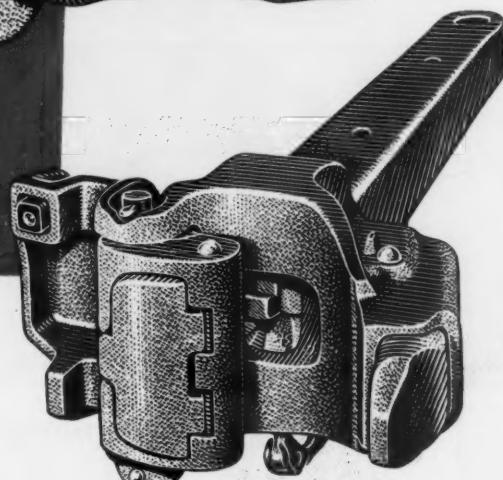
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Santa Fe inaugurates shorter, faster passenger and freight route between Dallas and Chicago and other points

It opens December 1st . . . Santa Fe's new main line into Dallas, the longest main line construction over new territory by any railroad in 25 years.

It is 49.3 miles long.

It begins a whole new Santa Fe rail service for travelers and shippers in the Dallas area. Better, faster service than ever before.

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All along the line, people and communities feel the benefits of Santa Fe's building new, and day after day some-

thing new is being done to make "America's New Railroad" better and better.

*It costs Santa Fe millions of *earned* dollars to keep "America's New Railroad" growing newer every day—but not one penny comes from the taxes you pay.*

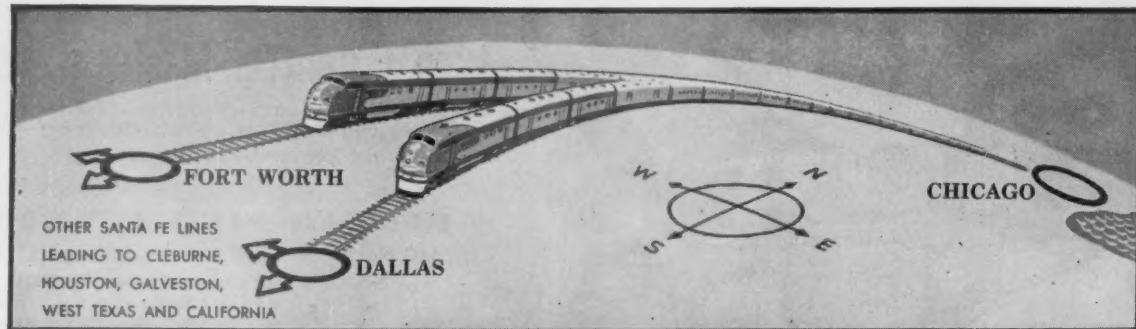
How Santa Fe's New Main Line into Dallas benefits North Texas

NEW. The new Dallas main line provides daily Santa Fe Chief streamlined passenger service all the way between Chicago and Dallas without changing trains.

NEW. The new Dallas main line cuts off hours of shipping time for freight from Chicago, the North and East—and provides more time for loading outbound freight at Dallas.

NEW. The new Dallas main line makes possible the development of thousands of acres of fine plant sites, affording greater opportunity than ever before to progressive and expanding industries in North Texas.

SANTA FE SYSTEM LINES



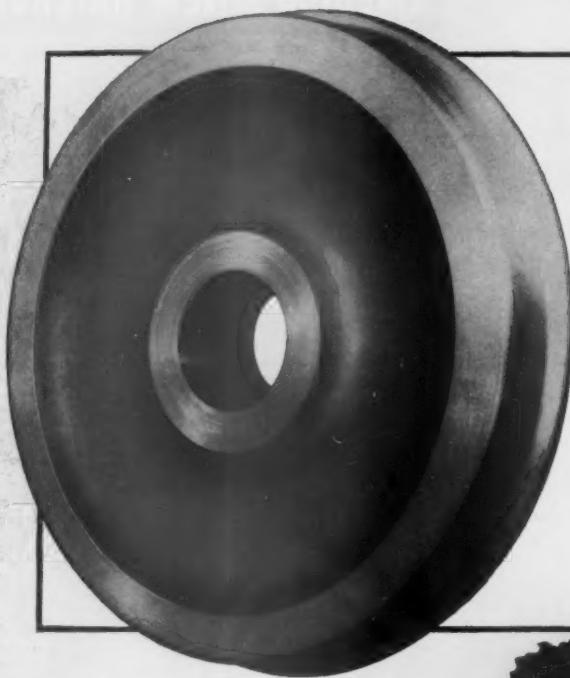
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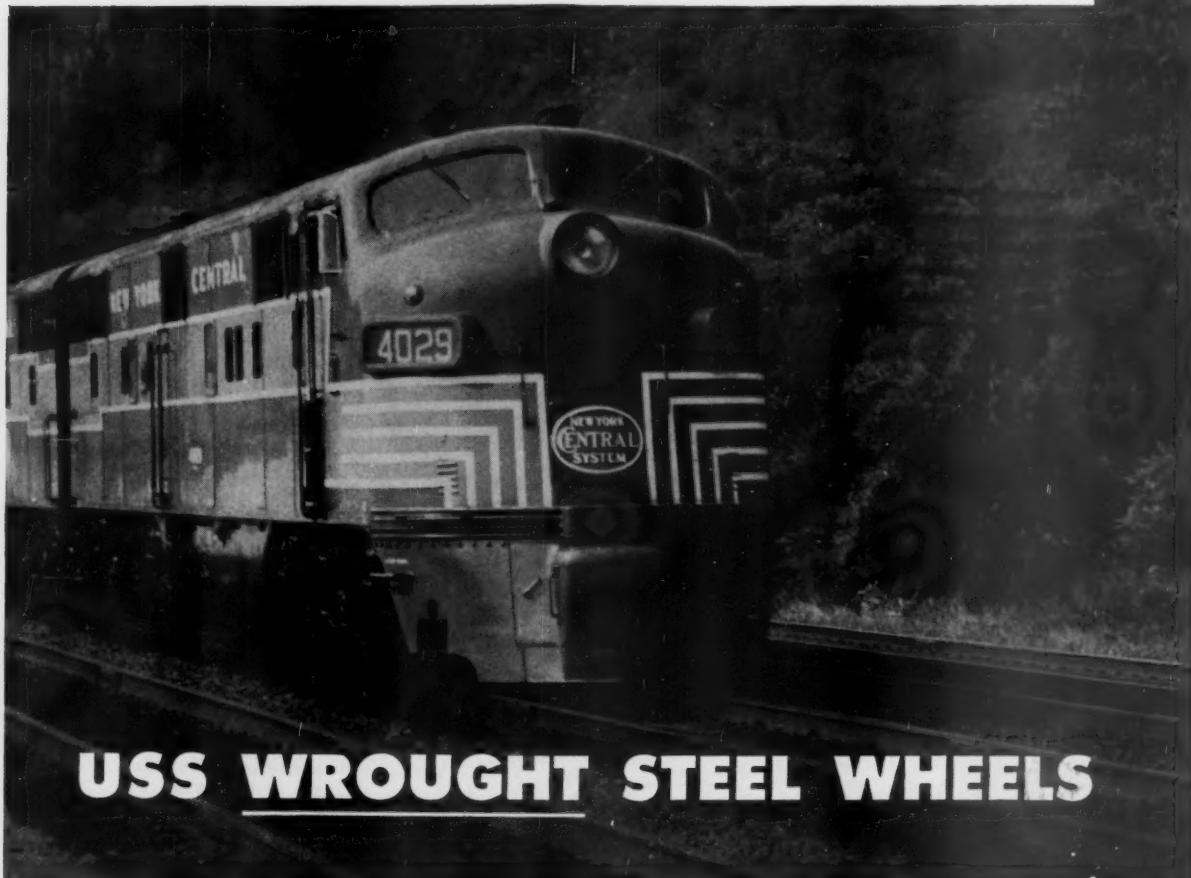
USS Multiple-Wear *Wrought Steel* Wheels deliver more ton miles per dollar than any other type wheel—for two reasons. Because they are made of steel, they possess the strength and toughness to bear heavy loads, the hardness to resist wear, and the ductility to minimize sudden brittle fractures. Secondly, this excellent combination of inherent properties is improved by forging, rolling, and control-cooling, resulting in a wheel of unequalled soundness. No other wheel is so well prepared for heavy loads, severe braking and high speed impacts. No other wheel requires so little maintenance, gives such

long, dependable service at comparable cost.

USS Multiple-Wear *Wrought Steel* Wheels are produced for all types of railroad applications including Diesel locomotives, electric and steam locomotives, passenger, express, and heavy-duty freight cars.

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UNITED STATES STEEL

Railway Officers

CANADIAN NATIONAL.—Eric Wynne, general superintendent of motive power and car equipment, Western region, at Winnipeg, Man., has been appointed chief of motive power and car equipment at Montreal, succeeding the late A. C. Melanson (*Railway Age* October 31, page 48). Mr. Wynne was born at Stafford, England, April 10, 1899, and entered railroad service in 1916 as callboy with the Grand Trunk Pacific (now CNR). After serving as machinist apprentice, machinist, mechanical inspector and mechanical engineer at various points, Mr. Wynne was named general superintendent motive power and car equipment, Atlantic region, at Moncton, N.B., in January 1949, transferring to the Western region at Winnipeg in June 1951.

DULUTH, MISSABE & IRON RANGE.—Emil S. Novak has been appointed general freight agent.

GREAT NORTHERN.—Robert W. Greenman, traveling passenger agent at Portland, Ore., has been appointed general agent, passenger

department at St. Paul, succeeding Raymond J. Class, promoted.

Paul W. Fritz has been named division storekeeper at Minot, N.D.

LOUISVILLE & NASHVILLE.

—Claude H. Ryan, traveling freight agent at Miami, Fla., has been appointed district freight agent there, succeeding C. C. Vaughn.

MAINE CENTRAL.—Willard E. Pierce, assistant general manager, has assumed the duties of superintendent, in addition to his present position.

Henry H. Livingston, Jr., superintendent, has been named assistant to general manager, with duties as may be assigned. Kathryn C. McMullan, supervisor of schedules, has been appointed director of personnel, reporting to the assistant general manager.

Everett K. Goddard has been appointed manager of car accounting and statistics and Samuel P. Ruth has been named assistant manager of car accounting and statistics at Portland, Me.

PENNSYLVANIA.—The listing below of staff members of this road's Northwestern (Chicago) and Southwestern regions completes *Railway Age* presentation of the names and titles of officers in the PRR's new management and regional organization.

Details of the new PRR setup were published in *Railway Age*, October 10, pages 46-52. Officers in the various system departments under the new organization were listed in the issues of October 17, page 48, and October 24, pages 106-107.

Staff members of the New York and Philadelphia regions were reported in *Railway Age*, October 31, page 47; those of the Chesapeake and Northern regions in the issue of November 7, page 46; and those of the Pittsburgh, Lake and Buckeye regions in the issue of November 14, page 70.

The staff of the Northwestern (Chicago) region, headed by H. H. Peveler, vice-president and regional manager, will include:

J. D. Fuchs, asst. regional manager; C. J. Flaherty, supt.—transportation; G. M. Smith, asst. supt. transportation (Fort Wayne); J. L. Forester, supervisor—transportation engineering; T. L. Young, supervisor train movement; J. W. O'Brien, train master (Logansport); R. E. Sullivan, freight train master (Chicago); E. N. Taylor, passenger train master (Chicago); W. B. Suhrie, train master and road foreman of engines (Grand Rapids); W. F. Portline, road foreman of engines (Fort Wayne); C. W. Keefer, road foreman of engines (Chicago); C. W. Whistler, supt.—equipment; S. Nagy, supervisor—car equipment; P. Thomas, supervisor—methods and cost control; O. F. Opats, supervisor—diesel equipment; P. G. Jamison, master mechanic (Chicago); L. E. J. Garrett, master mechanic (Fort Wayne); C. F. Parvin, regional engineer; W. P. Conklin, engineer—structures; J. A. Balla, engineer—communications and signals; H. E. Simmons, supervisor—methods and cost control; T. H. Taylor, supervisor—M.W. material and equipment; P. J. Harnish, district engineer (Fort Wayne); M. B. Miller, district engineer (Chicago); J. C. McMichael, freight traffic manager; W. M. Hardt, II, mgr.—freight sales and services; H. P. Lowry, supervisor—freight service; C. R. Brennenman, supt.—freight stations;

J. P. Crawford, supervisor—freight handling; C. H. Ignatius, supervisor—clerical operations; H. P. Bates, district sales manager (Chicago); R. M. Roth, district sales manager (Fort Wayne); O. B. Peterson, district sales manager (Grand Rapids);

T. W. Hoke, district sales manager (South Bend);

E. M. Holt, passenger manager;

E. J. Finnegan, asst. passenger manager;

H. W. Ring, district passenger manager (Chicago);

J. A. Oliver, district passenger manager (Milwaukee);

J. R. Brown, district passenger manager (Minneapolis);

G. C. Olsen, district passenger manager (Seattle);

D. Seaman, district passenger manager (Los Angeles);

G. F. Brown, district passenger manager (San Francisco);

S. L. Zane, supt.—personnel;

J. V. O'Hara, supervisor—labor relations;

L. F. Zollinger, supervisor—personnel;

W. J. Finegan, mgr.—real estate;

Dr. G. A. Vance, regional medical officer;

L. T. Henderson, mgr.—public relations;

C. D. Wilkins, mgr.—industrial development;

E. H. Myers, asst. mgr.—industrial development;

R. R. Miller, regional claim agent;

H. M. Heatheron, budget supervisor;

J. W. Shumaker, chief of police.

The staff of the Southwestern region, headed by C. G. Magruder, regional manager, will include:

A. L. Hunt, supt.—transportation;

W. S. Plummer, asst. supt. transportation—freight (Indianapolis);

H. E. Bennett, supervisor—transportation engineering;

C. Crawford, supervisor—train movement;

C. B. Herman, passenger train master (Indianapolis);

H. G. Fuller, road foreman of engines (Indianapolis);

R. R. McKinney, supt.—equipment;

J. M. Carpenter, asst. supt.—equipment;

H. T. Bramblett, supervisor—car equipment;

E. L. Velte, Jr., supervisor—methods and cost control;

W. S. Adams, supervisor—diesel equipment;

W. W. Boyer, regional engineer;

J. S. Snyder, asst. regional engineer;

J. D. Moore, engineer—structures;

W. C. McConnel, engineer—communications and signals;

J. P. Zelear, supervisor—methods and cost control;

J. W. Warbritten, supervisor—M. W. material and equipment;

E. L. Wogen, freight traffic manager (St. Louis);

J. F. McAloon, supervisor—freight service;

W. J. McKinley, supt.—freight stations;

R. E. Sanderson, supervisor—freight stations;

R. D. Clemens, district sales manager (St. Louis);

J. A. Sladen, district sales manager (Louisville);

W. P. Hammond, district sales manager (Indianapolis);

F. W. Konze, district sales manager (Terre Haute);

N. W. Culmer, district sales manager (Peoria);

C. L. Merryman, passenger manager;

W. L. Wright, Jr., passenger manager—St. Louis;

H. E. Cain, district passenger manager (Birmingham);

L. F. Jacobs, district passenger manager (Louisville);

H. E. Weaver, district passenger manager (Dallas);

A. Prescott, district passenger manager (Houston);

N. P. Patterson, supt.—personnel;

J. Dehl, supervisor—labor relations;

G. N. Anderson, supervisor—personnel;

L. P. Ogle, mgr.—real estate;

Dr. N. J. Fine, regional medical officer;

R. O. Baird, mgr.—public relations;

V. J. Floyd, asst. mgr.—industrial development;

K. H. Herber, regional claim agent;

C. L. Yeazel, budget supervisor;

G. A. Busemeyer, chief of police.

OBITUARY

J. William Bahen, 50, assistant to president in charge of coal traffic and development for the **Chesapeake & Ohio**, died November 11 at the Greenbrier Hotel, White Sulphur Springs, W. Va.

Fred W. Fischer, 64, division freight agent of the **Erie**, died November 7 at Dayton, Ohio.

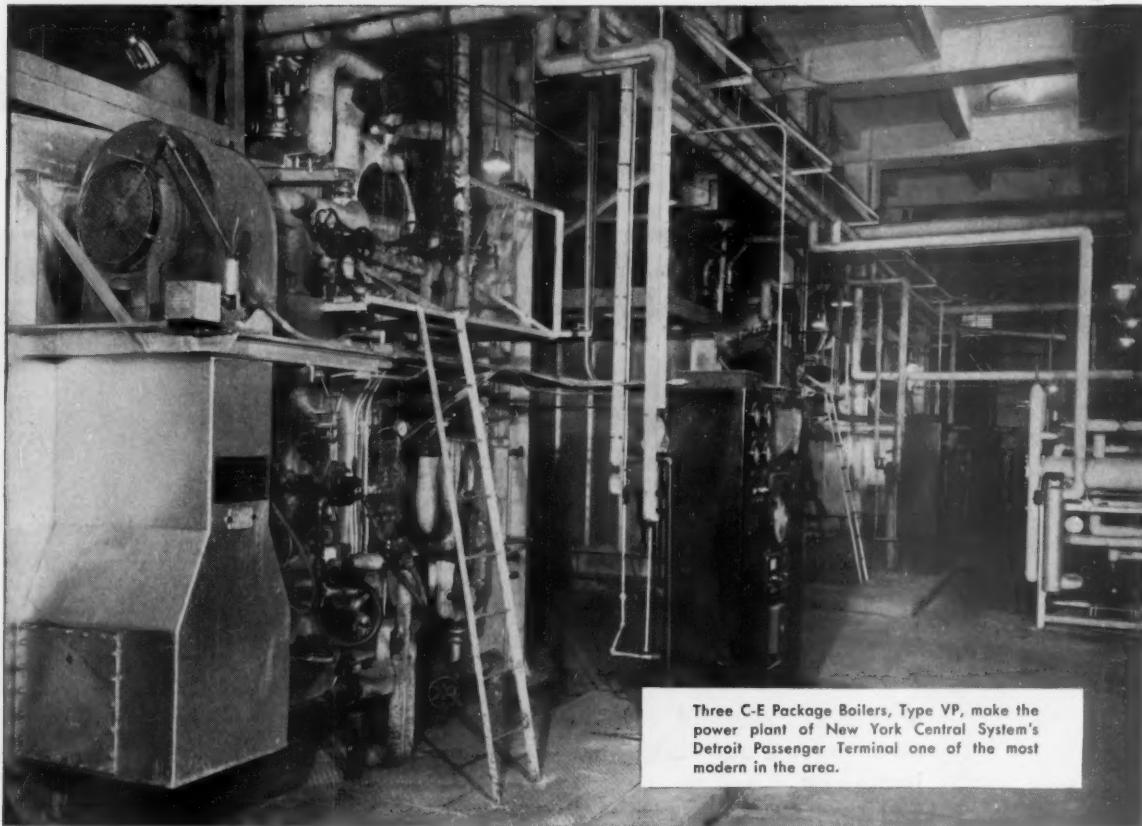
Allen N. Summers, 56, assistant to general manager of the **Santa Fe** Coast Lines, died November 5 at Los Angeles.

Prosper E. Thian, 93, retired consulting engineer of the **Northern Pacific**, died November 9 at St. Paul, Minn.



CHICAGO & NORTH WESTERN.—Fred O. Steady (above), who has been appointed general solicitor, and Charles H. O'Hearn (below), who has become general auditor (*Railway Age*, October 31, page 46).





Three C-E Package Boilers, Type VP, make the power plant of New York Central System's Detroit Passenger Terminal one of the most modern in the area.

Three C-E Package Boilers, Type VP modernize Michigan Central power plant...

When steam demands became too heavy for the Detroit Passenger Terminal's five old-style boilers, they were replaced with three new Combustion Engineering Package Boilers, Type VP. The efficient new C-E installation provides adequate amounts of steam for 150 passenger cars, as well as for heating adjacent buildings.

Each of the three new VP Boilers has a capacity of 28,000 pounds of steam per hour, at 175 psig operating pressure. Oil firing the boilers results in a substantial saving over the cost of coal for the old boilers.

Probably your steam needs, too, can be economically handled by a C-E Package Boiler. But if you need even

greater capacity, or fire solid fuel, C-E has the answer. The C-E Vertical Unit Boiler, Type VU-10, for example, is available in nine sizes from 10,000 to 60,000 pounds of steam per hour...for operating pressures to 475 psi. In fact, there is a standardized C-E boiler for any capacity from 5,000 to 350,000 pounds per hour...for any type of fuel. Our engineers will be glad to discuss your specific needs at any time.

Other Leading Railroads that use VP and VU-10 Boilers

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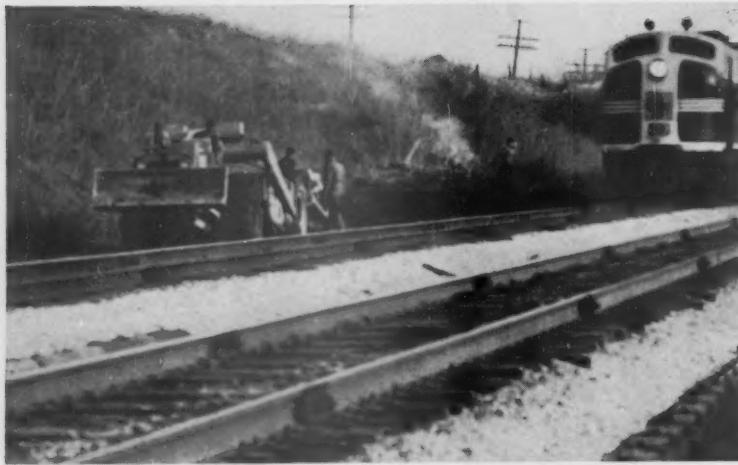
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you \$10.00...is it worth it?





Careful on-the-job time studies taken over a period of 8 years show the 7-yd., 28 mph "D" loads and hauls so fast it moves more dirt under almost every condition and on almost any length haul than larger 8 and 11-yd. crawler-drawn scrapers. Ask for a demonstration. Prove the "D's" advantages to yourself.

Put wasted hours to work

HOW MUCH of your maintenance budget did you spend last year for work train service plus wasted waiting time while work crews watched the trains go by? Add in, too, the time for loading and unloading, time for blocking to take crawlers over tracks, time shovels sit idle while waiting for trucks or cars.

Then you'll see why more and more lines are putting high-speed, off-track D Tournapulls on their earth-moving jobs.

One man drives this load-haul-and-spread earthmover anywhere, anytime. Big rubber tires travel over any route...along tracks, over trestles, across yards or fields...on paved highway or back roads. Scraper bowl easily carries tools,

supplies, and extra fuel supply. Top speed is 28 mph.

For small scattered jobs, the "D" self-loads around 5 cu. yds. as a "one-man" dirtmover. When you have volume yardage to move, you bring in a fleet of "D's", and use a pusher to heap in 7-yard capacity loads. Or, Tournapulls can work in pairs, push-loading each other with dozer blades.

Whatever your loading method, this is the fastest, handiest off-road maintenance tool ever to hit the railroad field. It will save you more time and more money on dirtmoving assignments, than any equipment you've ever put on your budget. Send coupon for all the facts.

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PERIODICAL ARTICLES

INGENIERIA FERROVIARIA, July-August, 1955. Avda. Mayo 963, Buenos Aires, Argentina.

This special issue devoted to Argentine railway shops and railway manufacturing plants, describes their development, present condition, and prospects for the near future.

RAILROAD DIESEL FUELS AND LUBRICANTS. Lubrication, November, 1955, pp 121-132. The Texas Company, 135 E. 42nd st., New York 17.

Discusses problems imposed on lubricating oil performance and types of fuel used.

BOSS OF THE BIG BOYS, by Keith Monroe. Collier's November 11, 1955, pp 106-109. Crowell-Collier Publishing Company, Springfield, Ohio. Single copies, 15¢.

President Arthur E. Stoddard's attack on the Union Pacific competition from planes, trucks, and buses, is discussed in this article.

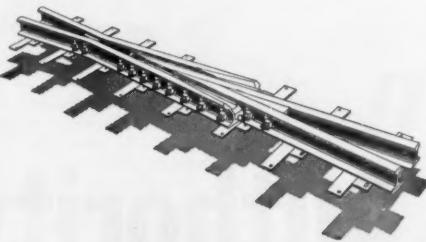
TRANSPORTATION, July, 1955. Published by the Connecticut Valley Chapter, National Railway Historical Society, Inc. Copies available from Roger Borrup, Warehouse Point, Conn., \$1, plus 10-cent mailing charge.

This 46-page magazine contains accounts of 18 trolley museums in the United States, Canada and Great Britain, with complete car rosters as of January 1, 1955. 81 photographs are included.

BOOKS

ECONOMICS OF TRANSPORT, by Emery Troxel. 837 pages. Rinehart & Company, Inc., 232 Madison ave., New York 16. \$7.

Intended primarily as an undergraduate text, parts of this book may also be of interest to specialists and managers in transportation. In his preface the author says it is his impression that many college teachers want a transportation textbook with more emphasis on economic analysis and less on legal history and business procedures. This book attempts to meet that need by giving considerable attention to allocative and pricing questions—to demand, cost, substitutive, and marginal-limit relations. Moreover a geographic or spatial setting is used frequently for the economic reasoning. For the most part the several transport industries are treated in a coordinate manner, since they often have similar characteristics of pricing, efficient or (Continued on page 61)



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Current Publications

(Continued from page 58)

ganization, and public regulation. The book is divided essentially into three parts. Economic thinking about efficient transport organization is the main subject of the first 14 chapters. A social setting is described, general rules and relationships of efficient allocations are outlined, and a history of American transportation is sketched. Discussion then turns to cost behavior, demands for movements of people and goods, allocative relations in both private and public transport systems, qualities of service, effects of transport prices on industrial locations, and coordinate relations between transporters. The second part, on public control, begins with a chronology of federal legislation, and refers particularly to the work of the Interstate Commerce Commission. The third part deals with rates for freight movement and passenger travel—notably the many price differentiations among kinds of goods, locations, and distances. In this connection the economic reasoning is focused on the meaning and identification of various kinds of price discrimination.

HEATING VENTILATING, AIR CONDITIONING GUIDE, 1955. 1680 pages, illustrations, charts, tables. American Society of Heating and Air-Conditioning Engineers, Inc., 62 Worth st., New York 13. \$12.

The 1955 edition contains revisions which make this volume an up-to-date source of information. As always, the book is divided into three sections—technical data, manufacturers' catalog data, and complete indexes. Revisions have been made in chapters such as those on air contaminants, heat transmission, moisture in building construction, heating loads, heating systems, piping, automatic controls, heating system corrosion, air conditioning and industrial exhaust systems.

FILM

FIERY MAGIC. 16-mm, 23 min, sound, color. National Carbide Company, a division of Air Reduction Company, 60 E. 42nd st., New York 17. Free on loan.

The title of the film refers to the blazing electric furnaces where coke and lime are combined to form calcium carbide.

Consecutive steps in the manufacture of carbide are clearly demonstrated by an animated flow chart, while the colorful sights of the processes are reproduced on footage shot at various National Carbide plants. The film also portrays the varied uses of acetylene—from its early use in lamps, through the rise of oxyacetylene welding and cutting, and finally as an important base in modern chemical processes.

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ADVERTISERS IN THIS ISSUE

American Brake Shoe Company, Brake Shoe and Castings Division	14, 15
Agency— <i>Doyle, Kitchen, & McCormick, Inc.</i>	
American Hair & Felt Company	43
Agency— <i>Oscar P. Holtzman, Advertising</i>	
American Steel Foundries	48, 49
Agency— <i>Ervin, Wasey & Company, Ltd.</i>	
Atchinson, Topeka & Santa Fe	50, 51
Agency— <i>Leo Burnett Co., Inc.</i>	
Bethlehem Steel Company	1
Agency— <i>Jones & Brakeley, Inc.</i>	
Boyer, R. H.	62
Caterpillar Tractor Company	11
Agency— <i>N. W. Ayer & Son, Inc.</i>	
Chipman Chemical Company	22
Agency— <i>Paul M. Healy Advertising Service</i>	
Combustion Engineering	55
Agency— <i>G. M. Basford Co.</i>	
Dearborn Chemical Company	47
Agency— <i>The Buchen Company</i>	
Evans Products Company	45
Agency— <i>J. Walter Thompson Company</i>	
Fairbanks-Morse & Co.	56, 57
Agency— <i>The Buchen Company</i>	
General American Transportation Corp.	23
Agency— <i>Weiss & Geller, Inc.</i>	
General Steel Castings	17
Agency— <i>Oakleigh R. French & Associates</i>	
Hyman-Michaels Company	62
International Railway Car Co. & Morrison Railway Supply Corp.	24
Agency— <i>Bowman & Block</i>	
Iron & Steel Products, Inc.	62
Johns Manville	26
Agency— <i>J. Walter Thompson Company</i>	
LeTourneau-Westinghouse Company	58
Agency— <i>Andrews Agency, Inc.</i>	
Lewis Bolt & Nut Company	59
Agency— <i>E. T. Holmgren, Inc.</i>	
Magnus Metal Corp.	20, 21
Agency— <i>Marsteller, Richard, Gebhardt and Reed, Inc.</i>	
Mississippi Valley Equipment Co.	62
Morton Mfg. Company	61
Agency— <i>W. S. Kirkland Advertising</i>	
Nelson Iron Works	59
Agency— <i>The Burke Company</i>	
Railway Education Bureau, The	62
Spino Railroad Ballast Cleaning Company, Inc.	59
Frank	
Agency— <i>Laws Advertising, Inc.</i>	
Standard Oil of Indiana	25
Agency— <i>D'Arcy Advertising Co.</i>	
Stran-Steel Corporation, Unit of National Steel Corporation	19
Agency— <i>Campbell-Ewald Company, Inc.</i>	
Texas Company, The	Inside Front Cover
Agency— <i>Ervin, Wasey & Company, Inc.</i>	
Texas & Pacific Railway	18
Agency— <i>Glenn Advertising, Inc.</i>	
Timken Roller Bearing Company, The	Back Cover
Agency— <i>Batten, Barton, Durstine, & Osborn, Inc.</i>	
Union Switch & Signal Division of Westinghouse Air Brake Company	2
Agency— <i>Batten, Barton, Durstine, & Osborn, Inc.</i>	
United States Steel Corporation, United States Steel Export Company	52, 53
Agency— <i>Batten, Barton, Durstine, & Osborn, Inc.</i>	
Vapor Heating Corporation	6
Agency— <i>William Hart Adler, Inc.</i>	
Waugh Equipment Company	Inside Back Cover
Westinghouse Air Brake Company	4
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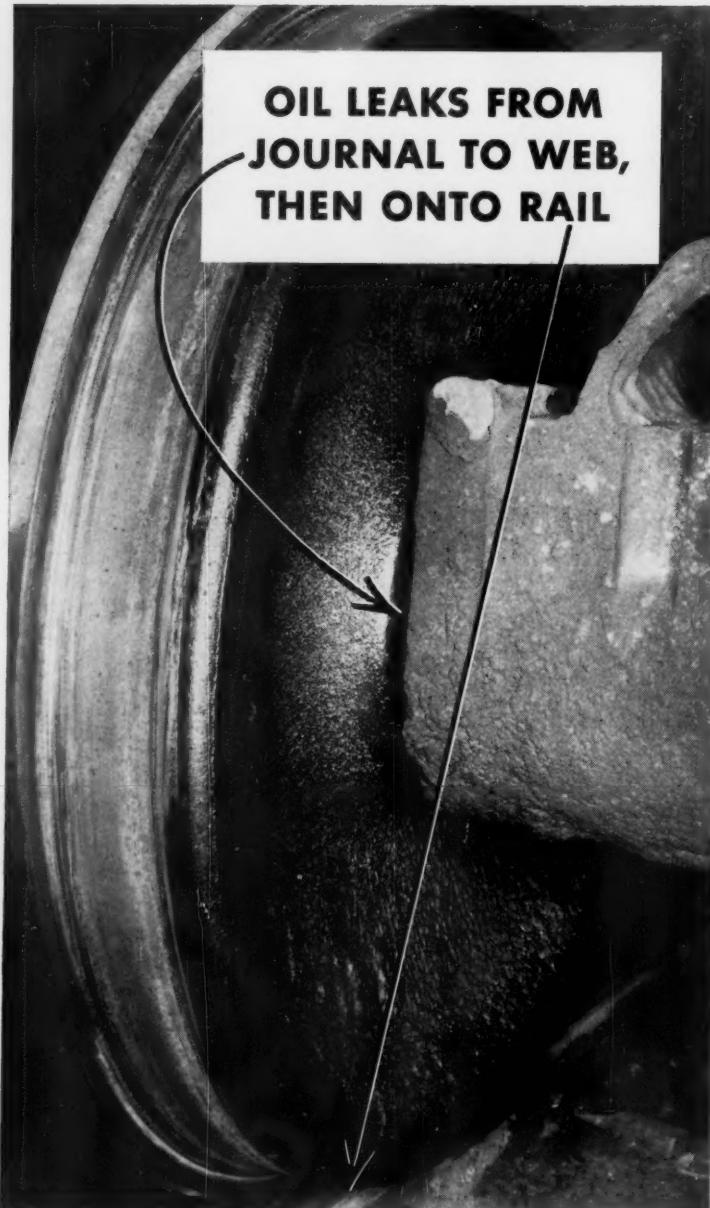
RAILROADS have become increasingly aware of diesel-electric locomotive wheel slip. And they've discovered that a major cause of slip is oil leaking onto the rail from the journals of friction-bearing-equipped freight cars. Oil runs down the wheel web to the tread and is deposited on the rail. And then it is spread over the rail by fog, dew, or light rain.

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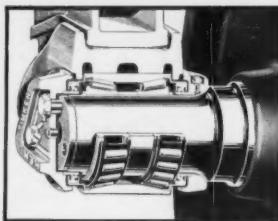
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